TECHNOLOGY AND STRUCTURAL UNEMPLOYMENT: REEMPLOYING DISPLACED ADULTS

SUMMARY

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Foreword

The problems of displaced adults have received increasing attention in the 1980s, as social, technological, and economic changes have changed the lifestyles of millions of Americans. Displaced adults are workers who have lost jobs through no fault of their own, or homemakers who have lost their major source of financial support.

In October 1983 OTA was asked by the Senate Committee on Finance and the Senate Committee on Labor and Human Resources to assess the reasons and outlook for adult displacement, to evaluate the performance of existing programs to serve displaced adults, and to identify options to improve service. In June 1984, the House Committee on Small Business asked OTA to include in the study an examination of trends in international trade and their effects on worker displacement.

Worker displacement will continue to be an important issue for the remainder of the decade and beyond, as the U.S. economy adapts to rapid changes in international competition, trade, and technology. The report shows that changes occurring in trade and technology mean that people whose work involves mainly routine manual and mental tasks, particularly in manufacturing, are vulnerable to displacement. Tasks, jobs, and processes that are highly dependent on semiskilled labor are those most likely to be moved offshore, lost to import penetration, or automated. As a result, less educated and less skilled workers are overrepresented among the displaced, and are unlikely to qualify for highly skilled technical, professional, or managerial positions which are less vulnerable to displacement.

This report concentrates on the problems of displaced blue-collar and nonprofessional white-collar workers. These workers are likely to face extended periods of unemployment, loss of health insurance and retirement benefits, and reemployment only at lower pay. For many semiskilled blue-collar workers, the best route back to a good job is retraining, although even with retraining, initial wages are often lower than on the old jobs. This report gives an overview of Federal programs that provide such services, and evaluates the extent to which both private and public programs are meeting the needs of displaced workers. It also includes an assessment of the extent to which adult educational systems and new educational technologies can help displaced workers and homemakers prepare for new jobs.

As with all OTA studies, the information, analyses, and findings of this report are solely those of OTA.

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Technology and Structural Unemployment: Reemploying Displaced Adults

OVERVIEW

In the past few years, millions of American workers have lost their jobs because of structural changes in the U.S. and world economies. Some of them—especially younger workers with skills in demand or the right educational background—have little trouble finding new jobs. Others—hundreds of thousands a year—remain out of work for many weeks or months, even for years. Many of the displaced are middle-aged unskilled or semiskilled manufacturing workers, with long and stable job histories. Given the pace of technological and structural economic change, they may be left behind.

These forces are also responsible for the loss of job opportunities for many younger workers. As U.S. firms automate, producing more goods with fewer people, or move production overseas, or fail to keep up with international rivals, they create fewer new manufacturing jobs. Indeed, **in some industries, it will be impossible even to maintain current levels of employment**. In the United States, one of the most open and attractive markets in the world, competition is forcing change at a rapid pace, recently accelerated by the strong dollar. Mechanisms for adjustment—such as job training programs and education for adults—have not kept up.

Over the 5 years from 1979 to 1984, 11.5 million American workers lost jobs because of plant shutdowns or relocations, rising productivity, or shrinking output. Of these 11.5 million workers, 5.1 million had held their former jobs for 3 years, and were counted as displaced by the U.S. Bureau of Labor Statistics (BLS). In 1984, 1.3 million of these displaced workers were still unemployed, joining the millions of others seeking work during a recovery that has not yet pushed the civilian unemployment rate below 7 percent. Another 730,000 of the displaced had dropped out of the labor force and were no longer counted as unemployed. **Of those who found new jobs, at least half took cuts in earnings**.

Although manufacturing now accounts for less than 20 percent of U.S. employment, **nearly half of all workers displaced from 1979 to 1984 worked in manufacturing industries, especially those hard hit by international competition** (such as steel, automobiles, industrial equipment, textiles, and apparel). The service jobs that the U.S. economy has created in the past few years are not equivalent to the old manufacturing jobs. In most, the pay is not as good (average hourly pay in the service sector was $7.52 in 1984, compared with $9.18 in manufacturing), and the better service jobs require skills or education that most displaced workers do not have.

There is broad consensus that displaced workers—and the cities and regions that have been hardest hit by displacement—should not have to bear the burdens of adjustment on their own. The Federal Government has supplemented its traditional employment programs with new assistance for displaced workers, mainly through Title III of the Job Training Partnership Act of 1982 (JTPA). Reports on the first 2 years of operation show that JTPA programs are helping displaced workers find new jobs. **However, it is likely that no more than 5 percent of eligible displaced workers are being served.**[1] Evidence is sparse on whether the program overall is providing much in the way of vocational skills training. Retraining in basic educational skills is mostly neglected, although one-fifth or more of all adult workers probably need improvement of their basic skills to get jobs with good possibilities for advancement. **To help provide the skilled work force that American industries need to maintain competitiveness in the world economy, the program will have to reach many more displaced workers, and emphasize training—particularly basic skills training—more strongly**.

One of the most effective ways to deliver services to displaced workers is through labor-management committees based in plants that are closing, and the best time to begin is before layoffs occur. The combination of early warning of large layoffs and early, in-plant response has worked in Canada for 20 years, providing effective reemployment help (not including retraining) to most victims of plant closings at modest cost to the government (about $108 per worker). A similar system in the United States probably would mean higher total JTPA spending, despite the low cost per worker, because of greatly increased participation. However, if participants are reemployed sooner, and at better jobs, than they otherwise would be, the benefits in higher tax revenues and lower costs of unemployment insurance could help offset program costs.

For many displaced workers, retraining is the best avenue to a good job with possibilities for advancement. In well-run projects, about 20 to 30 percent of the displaced workers become interested in retraining and have the background to take advantage of it. Whether displaced workers are getting enough chances at training for new skills and occupations is uncertain; JTPA reporting is minimal. However, the average of $768 to $895 spent per worker in the first years of the JTPA program would probably be inadequate to retrain many workers; programs that do emphasize a variety of services, including vocational skills training, commonly spend more than $2,000 per worker. Retraining is not for everyone. Many blue-collar workers who have drawn a paycheck for years simply do not want to go back to the classroom—especially if other jobs are available. Many others would need additional basic skills education before they could cope with technical training for better jobs. Still, strong emphasis on education and training for a substantial minority of people appears to be lacking.

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[1] The eligible population in 1983 was roughly 3 million workers, based on the BLS survey which found 11.5 million people had lost jobs due to employment cutbacks from 1979 to 1983. Although BLS defines only 5.1 million of these people as displaced, holding the former job for 3 years is not a requirement for eligibility.

Remedial education for the large number (perhaps 20 percent) of displaced workers lacking basic skills is a clear but unmet need. A few displaced worker projects have found ways to offer remedial education very successfully, but most do not attempt it. To get and hold well-paying jobs in an era of rapid technological change and intense global competition, all U.S. workers—not just displaced workers—need sound basic skills, including not only reading, writing, and quantitative reasoning, but communication skills and conceptual and problem-solving abilities. At the same time, these skills must be available if American industries are to compete with those of countries where labor is cheap and living standards are low relative to those of the industrialized countries.

Families and the public school system bear the main responsibility for providing good basic skills. However, as many studies have shown, too many of our young people emerge from public schools ill-equipped for work. Although it is much harder to repair the lack of basic skills later in life than to acquire them in the school years, some programs have demonstrated success. New educational technologies offer considerable promise in helping adults overcome basic skills deficiencies. Strong support from the Federal, State and local governments and private employers is needed to give these efforts a better chance and to develop or adapt educational software for adults.

Given the incentives leading U.S. firms to invest overseas and take advantage of cheap labor, or to use less labor at home, displacement is bound to continue. **Manufacturing jobs—especially production jobs—will continue to decline as a fraction of total employment; they are likely to continue to decline in absolute numbers as well. Within manufacturing, the most vulnerable jobs are those of unskilled and semiskilled production workers**. These jobs are not only the easiest to automate, they are also the easiest to move overseas. In all sectors of the economy, service as well as manufacturing, manual labor and routine mental tasks are vulnerable to computer-based technology. Through the rest of the century, pressures for adjustment will hit hardest at people holding these jobs.

Another group of displaced people, with especially difficult problems of finding adequate jobs, is displaced homemakers. These are women whose main job has been home and family, but who must now support themselves because of divorce, widowhood, disability or long-term unemployment of their spouse, or loss of eligibility for public assistance. Like workers displaced from factories and offices, they have lost their major source of income and face painful readjustment problems. **The number of displaced homemakers facing serious employment problems is in the millions, and is growing**. Federal assistance to displaced homemakers has been meager in the past, but recently was substantially increased in the Carl D. Perkins Vocational Education Act of 1984. Yet support for the programs serving this group is still small in relation to their numbers. **Barriers to employment are higher for displaced home-**

makers than for mainstream displaced workers, because many have little experience in a paid job. Barriers to training are also high because most of these women have no unemployment insurance or other income cushion to see them through training.

To meet the challenge of living with global competition while enhancing the quality of its citizens' lives, the United States will have to move on many fronts to upgrade the skills of its work force and to make the best use of the abilities of its people. This includes giving all Americans a sound basic education; giving adult workers the opportunity to retrain later in life, in classrooms or in the workplace; designing jobs and organizing work to take best advantage of the skills people have or can acquire; and ensuring high-quality reemployment and retraining services to workers who find themselves in the wrong place at the wrong time, and become displaced. Responsibility for the success of such efforts is not just that of the Federal Government, but of local and State governments as well, working in cooperation with employers and the private sector.

Policy options are discussed in chapter 2 of this report. These options include congressional actions that could facilitate more rapid response to displacement and quicker reemployment, enhancing both vocational and basic education and training in JTPA and other programs, improving delivery of assistance to displaced homemakers, adjusting JTPA reporting requirements to give more timely information on program spending and services offered, improving labor market and occupational information, emphasizing research on the effects of technological change on jobs, and enhancing the contribution of instructional technologies in adult education and training.

INTRODUCTION

The Senate Committee on Finance and the Senate Committee on Labor and Human Resources requested that the Office of Technology Assessment (OTA) undertake an assessment of the causes of and remedies for displacement. The committees requested that special attention be given to the role of technology as a cause of displacement, and that the assessment explore the potential of instructional technology for retraining workers who need new skills or basic education to find good new jobs. In addition, these committees asked that OTA assess the extent to which occupational forecasts made by the BLS incorporate and adjust for technological change. A subsequent request, made by the House Committee on Small Business, asked OTA to focus particularly on the role of trade in causing displacement, and to examine how trade affects employment in general. In response to these congressional interests, OTA undertook a study to answer the following general questions:

- How does technological change displace workers, and who is displaced by labor-saving machinery? What kinds of people and industries are most likely to be affected by labor-saving technologies?
- How do trade and offshore production affect employment in differ-

ent sectors in the United States? What kinds of workers and industries are most likely to be adversely affected by trade and relocation of production to offshore sites?

- How do reemployment programs perform in finding new jobs for eligible workers? What kinds of services are offered, and how effective are different types of programs and services?
- To what extent do adult educational institutions serve the needs of displaced people or help adults prepare for job and career changes, and avoid displacement? What are the roles of government and the private sector in retraining and educating displaced adults?
- What contribution could new technologies for training and education make in helping people to develop new skills and overcome basic skills problems?

To address these questions, OTA investigated industries affected by either significant foreign competition or changing technologies, or both, to find out how these changes affected workers, numbers of job opportunities, and the quality of jobs in the industries. National displaced worker programs and individual projects, public and private, were examined to determine what kinds of workers are being assisted, what kind of assistance is given, and how well the assistance succeeded in finding new employment and minimizing the costs of displacement. The educational requirements of displaced adults were assessed, as were the abilities of existing adult education institutions and instructional technologies in the public and private sectors to help workers avoid displacement, by preventive training and by upgrading the skills of the work force. OTA examined the ability of the so-called high-technology manufacturing sectors to replace jobs lost in other sectors. Finally, OTA assessed the overall employment trends in the United States and their impact on the performance of displaced worker programs and projects.

The Senate Committee on Labor and Human Resources also requested that OTA, in addition to assessing worker displacement, assess the problems and needs of displaced homemakers. To satisfy this request, OTA analyzed data from the Bureau of the Census in order to estimate the number and characteristics of displaced homemakers and assessed the structure and performance of national programs and individual projects for displaced homemakers.

Specific policy options were identified which might improve the system of assistance for displaced workers, and help employed workers make job and career transitions. In addition, OTA identified some policy options that address occupational forecasting and research on the employment effects of government-sponsored research. Because the report focuses primarily on displacement, other kinds of policy, such as overall labor policy, industrial policy, trade policy, and macroeconomic policy were not addressed specifically. While trade, industrial adjustment, and macroeconomic performance do affect employment and displacement, policies in these areas have other consequences and objectives than affecting employment.

DISPLACED WORKERS: DEFINITION AND DESCRIPTION

Worker displacement is a continuing problem in a growing, dynamic economy. In the industrialized world, conditions of production and competition are constantly changing: new production technologies are developed, new products are made, and old products and techniques fall by the wayside. New competitors enter the field, forcing existing enterprises to adjust or go out of business. Increasingly, this competition is international. The number of countries whose products can hold their own in industrialized countries is growing. There is also a growing conviction that the pace of such change is accelerating: that the adjustments must be made more often, that the pressure to change before the competition changes is intensifying. Most experts agree that this dynamism is good for the economy as a whole. The processes of competition and change allow people to choose from a wider variety of goods and services, at lower cost, than would be possible in a static economy.

However, technological change and world economic interdependence mean that millions of American workers are displaced, and some must make forced work transitions several times during their lives. Automation, changing conditions of trade, offshore production, and changing consumption patterns have displaced millions of workers, and made it necessary for others to learn new skills, relocate, or change jobs.

Between January 1979 and January 1984, 11.5 million workers lost jobs due to plant closings or relocation, abolition of a position or a shift, or slack work. Of those, 5.1 million had had the job for at least 3 years, and were considered displaced according to a special survey conducted by the Census Bureau in January 1984 and analyzed by BLS. This definition underestimates the number of displaced workers, primarily because workers (such as younger workers and people who have just changed jobs) who have not held their former jobs for 3 years are not counted as displaced. However, it is inappropriate to count all 11.5 million workers who lost their jobs during the period as displaced, because some of the loss of jobs—particularly that due to "slack work"—probably was cyclical.

By January 1984, 1.3 million of the 5.1 million displaced workers were still unemployed; some 500,000 had been unemployed for more than 27 weeks. About 730,000 people had left the labor force, some by choice but many out of discouragement or by retiring earlier than they might have wished. During the entire 5-year period, nearly one-fourth of the 5.1 million displaced workers were without work for more than a year. Many of the 3.1 million workers who were reemployed had experienced real difficulties finding new jobs. During the 5 years, nearly one-third of those who found jobs and who reported their earnings had taken pay cuts of 20 percent or more, and over one-tenth of former full-time workers had taken part-time work.[2]

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[2] Of the 3.1 million workers considered displaced according to the BLS definition who were reemployed by January 1984, 2 million reported earnings in both the old and the new jobs.

Displaced workers are typically white males of prime working age with a steady work history in a blue-collar job in the Midwest or Northeast. However, many other groups are represented. One-third of displaced workers are women; 12 percent are black; 18 percent are over 55. Forty percent of the full-time work force is female, 11 percent is black, and 12 percent is over 55. **Even though women are actually underrepresented in the population of displaced workers, and black people are represented in proportion to their share of the work force, these groups fared significantly worse than white men in regaining employment after being displaced.**

Less skilled and less educated workers are more likely to be displaced, and more likely to have trouble finding a new job. Among the 5.1 million workers displaced from 1979 to 1983, **the most overrepresented occupational group by far was machine operators, assemblers, and repairers,** who comprised 22 percent of the displaced workers but only about 7.5 percent of the work force. Less likely to be displaced and more likely to find replacement jobs were professionals; executive, administrative and managerial workers; technicians; salespeople; and service workers (figure 1).

The occupational group most at risk (machine operators, assemblers, and repairers) is concentrated in manufacturing, and indeed, **manufacturing workers experienced job losses far out of proportion to their numbers.** Nearly half the displaced workers were from manufacturing, although manufacturing employs less than 20 percent of the work force (figure 2). The largest job losses occurred in nonelectrical machinery, automobiles, primary metals, and textiles and apparel. Together, these four sectors accounted for nearly 21 percent of all displaced workers, although they employ only about 6 percent of the work force.[3]

Geographically, **the hardest hit was the Great Lakes region—Michigan, Ohio, Indiana, Illinois, and Wisconsin.** This region accounted for 24 percent of the displaced, but only about 18 percent of the work force. The Middle Atlantic area (New York, New Jersey, and Pennsylvania) and the East South Central region (Mississippi, Alabama, Tennessee, and Kentucky) also had more than their share of displaced workers (figure 3). Since these regions also are centers of manufacturing, this regional concentration is not surprising.

Displaced workers are likely to experience prolonged unemployment. Of the 5.1 million workers displaced between January 1979 and January 1984, 43 percent were out of work for at least 27 weeks, and nearly one-fourth of them had periods of joblessness adding up to a year or more (figure 4). Many of these people are out of work long enough to exhaust unemployment insurance and family savings. Of the nearly 2.5 million manufacturing workers displaced, less than 60 percent had

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[3] Figures relating to percentages of the work force in different industries come from establishment data collected by States and compiled by the Bureau of Labor Statistics. This data comes from a survey of businesses with payrolls, and does not include people employed in agriculture or self-employed. The establishment data for 1984 pertained to 82 percent of the entire work force, or about 94 million people.

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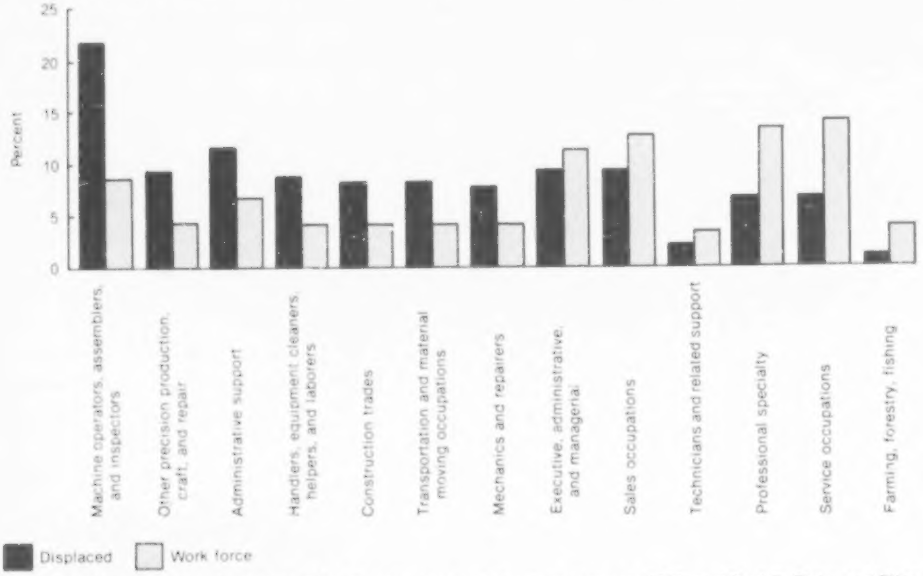
Figure 1.—Percentage of Displaced Workers by Occupation and by Percentage of the Labor Force Accounted for by That Occupation



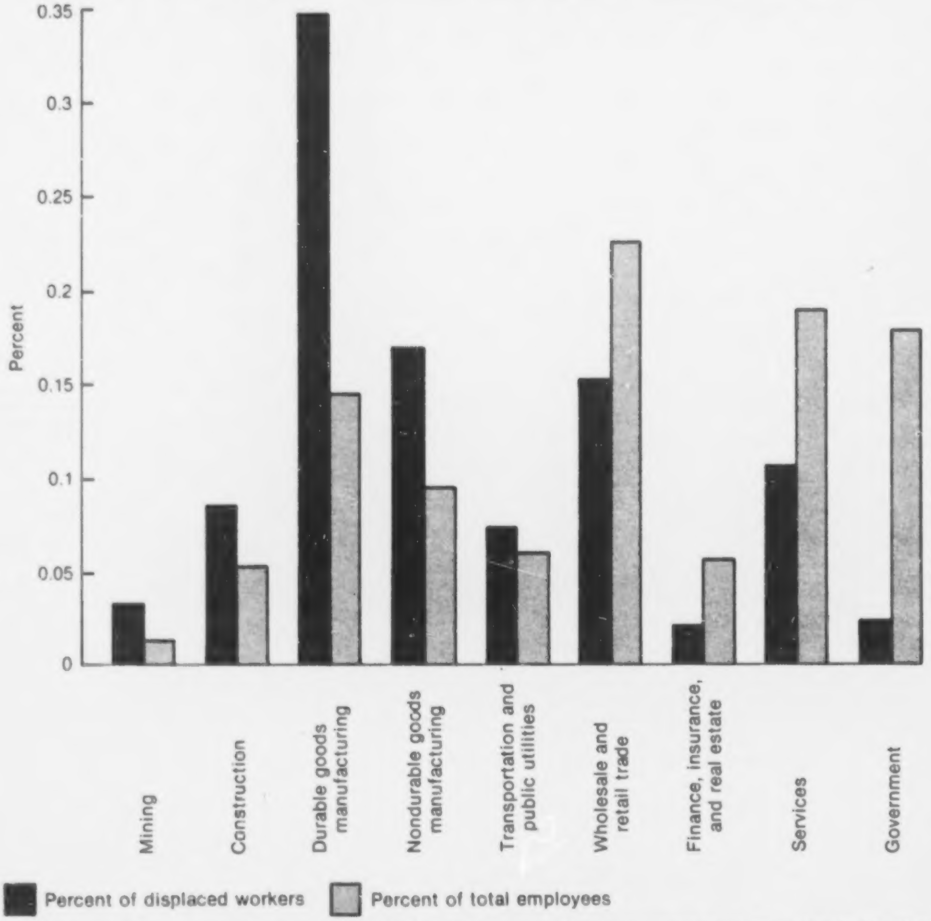
SOURCE: U.S. Department of Labor, BLS, *Employment and Earnings*, January 1985, and Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985, p. 7.

found jobs as of January 1984; the rest had either dropped out of the labor force or were unemployed.

The costs of displacement do not usually end with reemployment. Many displaced workers take jobs at lower pay and status than they had in their old jobs. **Of the workers who reported their earnings in the Census Bureau survey, 45 percent had taken a pay cut, and two-thirds of those were earning less than 80 percent of their former income.** Even workers who find jobs that pay as well as their former jobs may still lose earnings over time, for they might have received raises and adjustments for inflation if they had been able to keep the old job. The Congressional Budget Office found that, on average, displaced workers experience long-term wage losses, and the greater the worker's seniority in the old job, the greater the loss. Moreover, **displaced workers lose benefits: health benefits usually stop, and pension benefits suffer.** The loss of health benefits is a matter of urgent concern to many displaced workers. A score of bills in the 98th Congress proposed funding mechanisms for health insurance for the unemployed, and three such bills have been introduced in the 99th Congress.

The economic stresses of displacement take a toll in mental and physical health. Prolonged unemployment, which most displaced workers suffer, typically brings with it increases in stress, anxiety, depression, physical ailments, alcoholism, and family strife. While these emotional costs are difficult to quantify, they are very real.

Figure 2.—Displacement by Industry, 1979 to 1984, and Percentage of Total Labor Force Accounted for by Each Industry, 1979

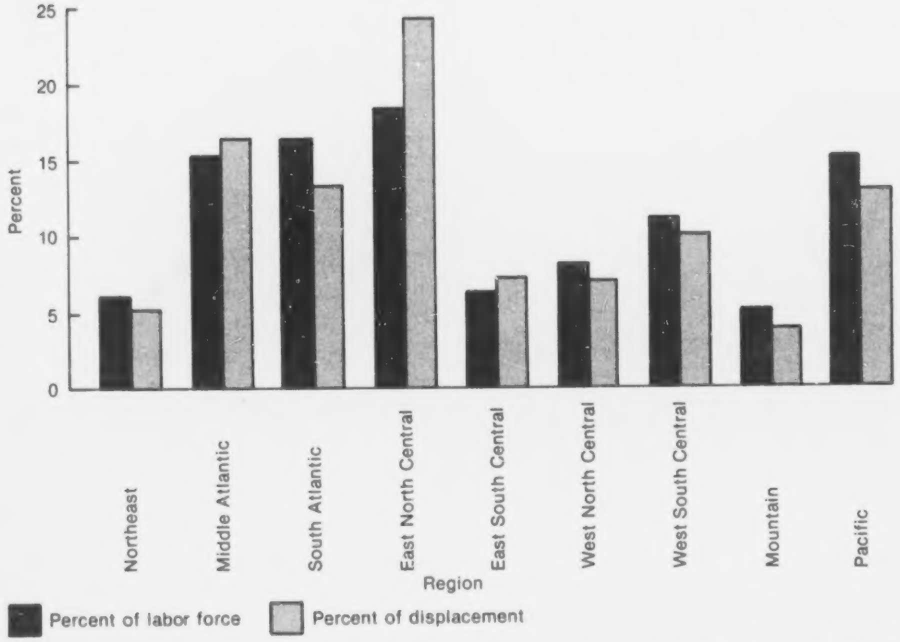


SOURCES: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, vol. 186, No. 6, June 1985, p. 5; and U.S. Department of Labor, Bureau of Labor Statistics, Supplement to *Employment and Earnings*, 1909-78 (Washington, DC: U.S. Government Printing Office, June 1984).

Displacement, Employment, and the U.S. Economy

Displacement can be devastating for communities and regions as well as individuals. The decline of manufacturing has hit certain States and regions much harder than others. Moreover, individual communities, and even whole regions, may remain depressed for years, as Appalachia did following the collapse of coal mining in the 1950s and 1960s. Large losses of employment have ripple effects in the community. A large layoff in one industry also affects workers in supplier industries and workers in local service establishments when laid-off workers reduce spending. For example, the unemployment rate of Michigan, in which thousands of workers were displaced from the automobile and related industries, was 10.4 percent in March 1985, still well above the national average nearly 2 years into an economic recovery (figure 5).

Figure 3.—Percentage of Labor Force and Percentage of Displaced Workers, by Region, 1984

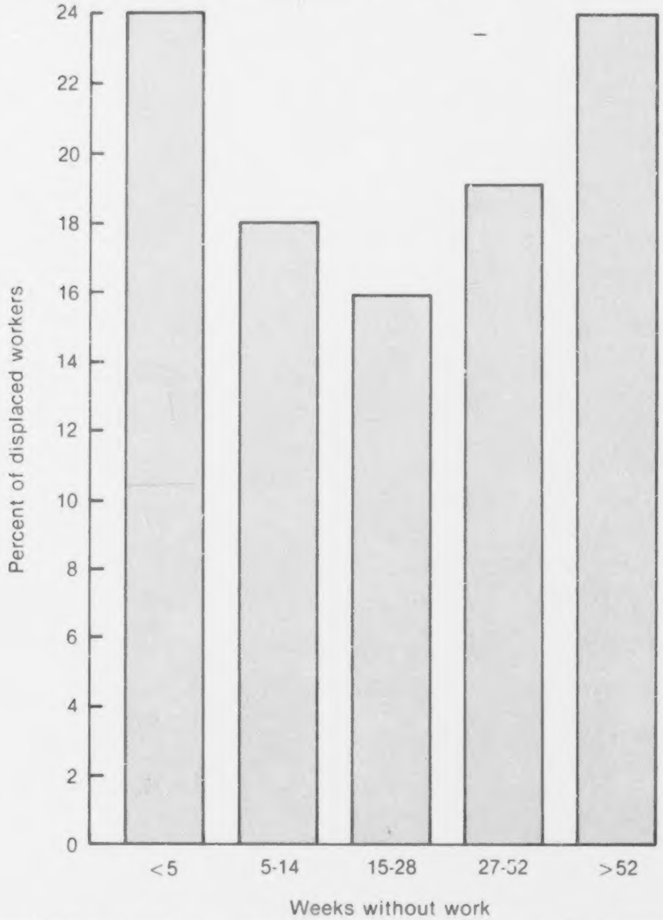


SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data; and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

Of course, if the economy—particularly the local economy—is creating jobs at a healthy rate, the ripple effects of large employment losses dissipate more quickly, and displaced workers may have an easier time finding new jobs. However, the new jobs created may not be ones that the displaced workers can move into without major sacrifices of income, benefits and seniority, or without substantial education or training. It is unlikely that manufacturing employment—particularly production work—will exceed its 1979 peak in the long run (in the 1990s and beyond). Some observers, in assessing the effects of new technology alone, foresee a decline in manufacturing employment in absolute terms. **Displaced manufacturing workers will increasingly have to find new employment in service industries.**

The shift of employment to services is well established: in the United States, over 50 percent of employment has been in service sectors for over 50 years. By 1985, nearly three-quarters of all employees in the United States worked in service-producing sectors. **In the last decade and a half, nearly all the new jobs created in the United States have been in service-producing sectors: of the 23.3 million people added to non-agricultural payrolls between 1970 and 1984, 94 percent were in service production; only 1 percent were in manufacturing.** Since 1979, manufacturing employment has dropped by nearly 1.5 million employees.

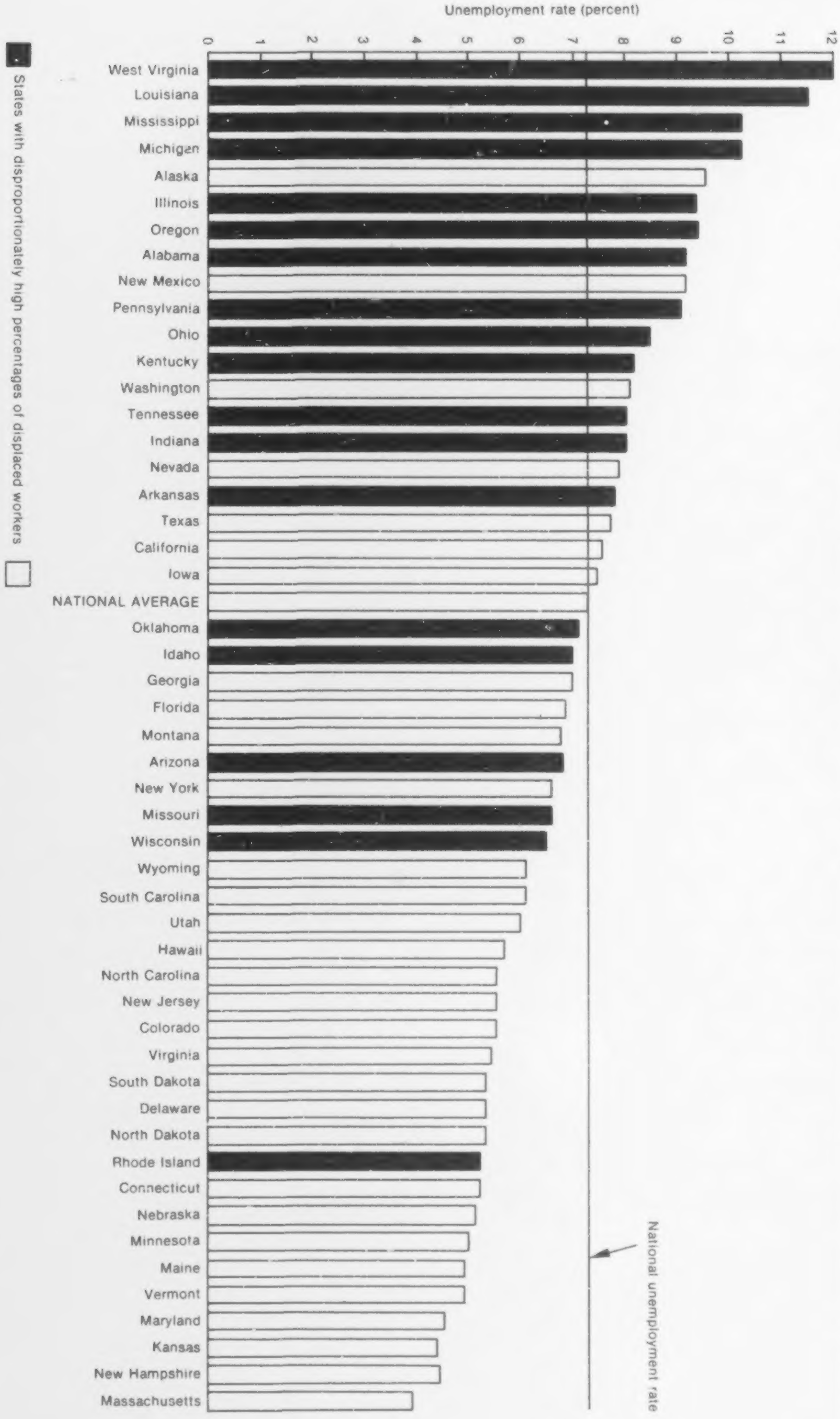
Figure 4.—Displaced Workers Weeks Without Work, as of January 1984



SOURCE: Paul O. Flaim and Ellen Sehgal, "Displaced Workers of 1979-83: How Well Have They Fared?" *Monthly Labor Review*, June 1985, p. 12.

The fastest growing sector is a category that includes hotels and other lodging places, personal services, business services, auto repair and service, motion pictures, amusement and recreation services, health services, and miscellaneous services. Like employment in other service-producing sectors, this sector includes many kinds of jobs, from highly paid, well-esteemed positions such as physician, accountant, and computer programmer to low-paid, less skilled positions such as nurse aide, clerk-typist, and cashier. **In general, employment in service-producing sectors is lower paid than in manufacturing: in 1984, average hourly wages for production and nonsupervisory workers in all the service-producing sectors was $7.52, compared to $9.18 in manufacturing. Service sectors have higher concentrations of jobs both in generally low-paying occupations and in management than manufacturing does.** For displaced workers, who are often unable to move into the

Figure 5.—State Unemployment Rates and Displacement, July 1985



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, unpublished data; and U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, December 1984.

more desirable jobs in service sectors without substantial education or retraining, moving to the service sector probably will mean loss of income and status.

Some workers, of course, will be able to shift from one manufacturing job to another, but **high-technology manufacturing sectors, such as computer and semiconductor manufacture, are unlikely to rescue many workers displaced from traditional manufacturing sectors.** While high-technology industries have created jobs faster than the economy as a whole, the employment base of these industries is small, so the number of jobs created is relatively modest. Depending on the definition of high technology chosen, only about 2.8 million to 9.7 million people worked in high-technology manufacturing sectors in 1984.[4] According to the most restrictive definition, which includes the sectors most people would identify as high-technology sectors, only 2.8 million people were employed in high-technology manufacturing industries in 1984. Moreover, employment in many high-technology sectors increasingly is skewed toward managerial and professional occupations, which most displaced workers are unqualified for without a great deal of additional education. Production jobs have grown more slowly than total employment in many important high-technology sectors, and account for less than 48 percent of employment in high-technology manufacturing. In all manufacturing, production workers account for about 69 percent of employment (figures 6 and 7).

In addition, high-technology manufacturing workers are not invulnerable to the economic forces that lead to displacement. The persistent high value of the dollar in currency exchange markets has hurt high-technology manufacturers as well as traditional manufacturers. While a fall in the value of the dollar would help restore the competitiveness of some firms, the long duration of the dollar's imbalance has allowed foreign producers of high-technology as well as traditional goods to develop distribution and servicing networks throughout the world. Recapturing this lost market share will not be automatic or simple for U.S. producers. Altogether, it is unlikely that high-technology sectors will make up for lost employment in declining manufacturing industries in the foreseeable future.

Small business cannot be counted on to make up all the job losses in large manufacturing firms. Although most evidence shows that small businesses at times create more jobs than large ones, the differential is uncertain and may be rather small over the long run. Conclusions that small businesses create far more than their share of jobs have been

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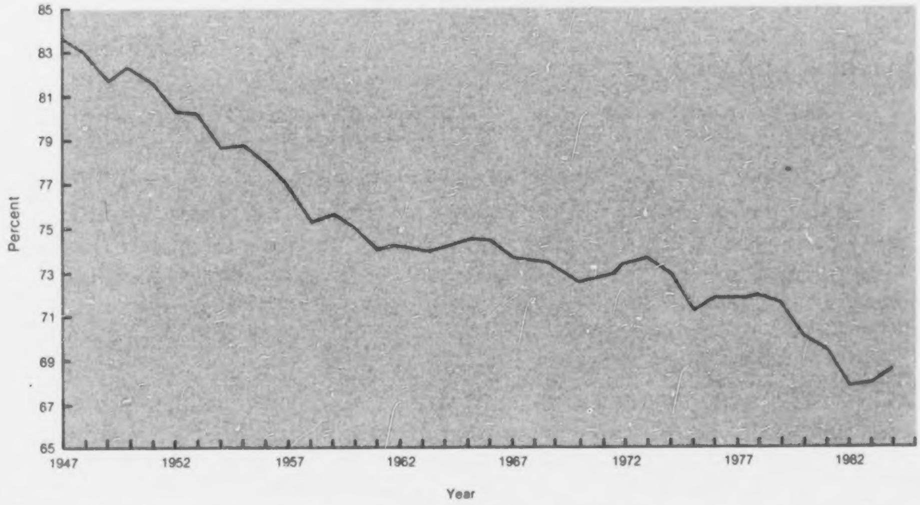
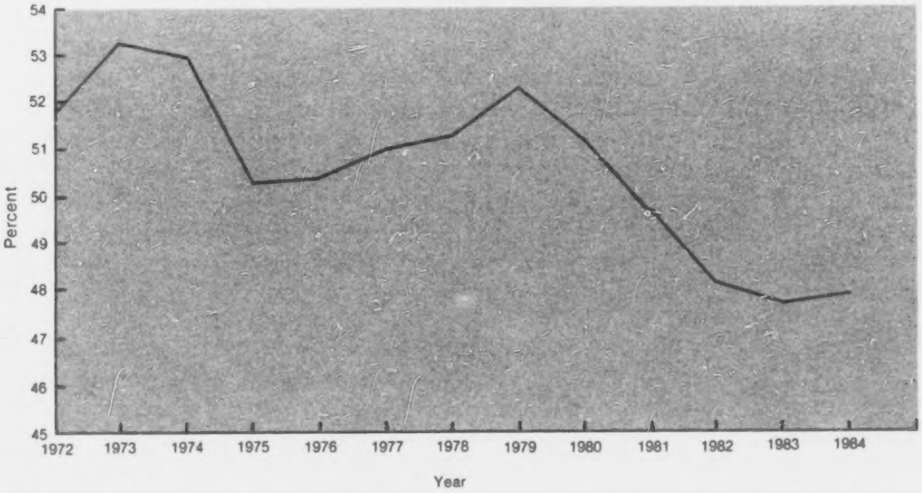
[4] The most restrictive definition of high-technology includes industries with a ratio of research and development expenditures to net sales at least twice the average of all industries. This definition includes sectors most people would identify as high-technology: drugs; office, computing, and accounting machines; communication equipment; electronic components and accessories; aircraft and parts; and guided missiles and space vehicles. The most liberal definition includes industries with a proportion of technology-oriented workers (engineers, life and physical scientists, mathematical specialists, engineering and science technicians, and computer specialists) at least 1.5 times the average for all industries. This definition includes many industries not commonly thought of as high-technology, such as heavy construction; paints and allied products; soaps, cleaners and toilet preparations; farm and garden machinery; and motor vehicles and equipment.

Figure 6.—Production Workers as a Percentage of Manufacturing Employment



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

Figure 7.—Production Workers as a Percentage of Employment in High-Technology Industries



SOURCE: U.S. Department of Labor, Bureau of Labor Statistics, *Employment and Earnings*, various issues.

drawn from data on establishments, which are not necessarily the same as businesses; many small establishments are branches or subsidiaries of larger firms. In 1978-80, small **establishments** created jobs out of proportion to their share of total employment, but small **firms** (fewer than 100 employees) accounted for little more than would be expected. In that period, small firms had 36 percent of total employment and generated 39 percent of new jobs. During the 1980-82 recessions, however, very small firms (fewer than 20 employees) generated all the net new jobs in the economy; other sizes of business showed declines during this period. Whether small firms create more than their share of employment over the long term is unclear; the job creation record of small business appears highly variable.

Displaced Worker Programs

Displaced workers are not the only unemployed workers. According to the definition of displacement of the U.S. Department of Labor, displaced workers accounted for about 14 percent of unemployment in January 1984. Displaced workers have the advantage of established work histories and good work habits, and many have some transferable skills. As a result, they are usually more employable than disadvantaged workers or unemployed teenagers, many of whom lack acceptable work habits such as demonstrated willingness to show up on time and put in the requisite number of hours. In view of the greater problems of the disadvantaged and current constraints on public spending, some observers question whether the government should provide special services for displaced workers.

One justification for government programs for displaced workers is that these people bear a disproportionate share of the burden for having a dynamic, adaptable, and generally open economy. Displaced worker programs may be viewed as the price society pays for an open trade policy and for a labor market that permits private employers considerable latitude in hiring and firing—much more than in some other industrialized countries. Another justification is that displaced worker programs can also help society avoid other kinds of expenditure, such as unemployment insurance, food stamps, Medicaid, and welfare that arise during long stretches of unemployment. Little recent information is available on the extent to which displaced worker programs substitute for other kinds of social expenditures, but earlier studies, evaluating the displaced worker program of the 1960s, found that savings in welfare and other transfer payments were large enough to pay back the investment of public funds in 2 to 4 years.

Concern over displacement, and government programs designed to serve displaced workers, tend to wax with unemployment and wane as employment recovers. In 1962, concerned with rising unemployment rates and fearing that automation would aggravate unemployment, Congress provided special funding for displaced workers in the Manpower Development and Training Act (MDTA). Within 2 years, however, a prosperous economy and falling unemployment caused a shift in the emphasis of government employment and training programs, toward assistance for disadvantaged workers. The unemployment rate stayed low throughout the 1960s, partly due to the enormous fiscal stimulus of the Vietnam conflict and the Great Society programs. In the 1970s, unemployment rates again edged up. By the late 1970s, unemployment in a nonrecession economy had risen to 7 percent, and it hit a post-World War II high of 10.8 percent in December 1982, at the depth of the recession. Concern over displacement reemerged strongly.

Concern was translated into action with the 1982 Job Training Partnership Act (JTPA, Public Law 97-300). Title III of JTPA authorized services for displaced workers. In October 1983, State Title III programs to serve displaced workers were initiated. Federal funding of $223 million was provided for a startup period of 21 months.[5] JTPA Title III was the first Federal program designed to serve all groups of displaced workers since the beginning of MDTA, in the early 1960s.

Although unemployment remains high by the standards of the past four and a half decades, it has fallen from its peak in the 1981-82 recession. In mid-1985, civilian unemployment fluctuated between 7 and 7.5 percent for nearly a year, dipping to 7 percent in August. With the unemployment rate falling from recession highs, concern over displaced workers also lessened.

The economic recovery neither stopped nor even greatly reduced displacement. Displacement is an ongoing process, associated with technical and economic change, and the problems of displacement are not the same as those of general or cyclical unemployment. Plant closings and mass layoffs, major contributors to displacement, are continuing during the recovery. Moreover, plant closings and mass layoffs are by no means confined to mature industries such as steel, textiles, and automobiles. For example, in Santa Clara County (California's Silicon Valley) semiconductor industry employment fell by about 2,000 in a few months, from 51,000 in November 1984 to 49,000 in May 1985. In the semiconductor industry as a whole, employment fell by 9,600 between its peak in December 1984 and July 1985.

The need for services to displaced workers does not vanish during economic recovery and growth. There is a continuing need for displaced worker services in an economy that is changing as rapidly as that of the United States. The demand for services may be greater during recessions, when it is more difficult for displaced workers to find jobs on their own. Displacement itself may increase during recessions, as some marginally competitive firms close or permanently cut back production and employment. For example, employment losses in the textile industry have been heavy during recessions, and these losses have not been made up during recoveries. According to the BLS survey, over 1.2 million workers were displaced even in 1979, by most standards a healthy year economically.[6]

Performance of JTPA Title III

Judgments about the effectiveness of Title III should be made cautiously at this point. JTPA Title III is the first comprehensive program for displaced workers in nearly 20 years. Most States have had to spend some part of the first 2 years of Title III's existence organizing to serve displaced workers. Few projects have yet learned how to cope with differing economic circumstances and changing populations of displaced workers. As a result, some projects and States have spent their initial allotments of funds quite slowly, leaving $184.5 million in unspent, but probably mostly obligated, funds by June 1985.

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[5] This funding covered fiscal year 1983 and the transition year, a 9-month period from October 1983 to June 1984. JTPA is funded by program year, beginning in July, rather than in October as the Federal fiscal year does.

[6] This figure may be an understatement, because the workers were surveyed 5 years after job losses occurring in 1979; according to BLS, people tend to forget events of the more distant past, and probably underreported job losses in the earlier years of the 5-year period.

Title III served 96,100 workers in its first 9 months, and another 132,200 workers were newly enrolled in the full program year July 1984-June 1985. This is probably less than 5 percent of the eligible population. In 1983 over 3 million adult workers were displaced from their jobs, according to the BLS survey; most of these workers were eligible for Title III services.[7] So far, the number of workers served per year by Title III is about 3.5 times the number of workers served by the Industrial Adjustment Service (IAS) of Canada, while the U.S. work force is almost 10 times larger than Canada's.

IAS and Title III are different: the Title III program offers a broad range of services, including counseling, job search and placement assistance, vocational training, and education. The IAS program is focused on helping displaced workers find new jobs quickly, offering services immediately on notification of mass layoffs or plant closings. The IAS program does not itself provide vocational training or education, but can refer workers to Canada's extensive, free adult training program. However, IAS reaches many more workers, in relation to the size of the Canadian labor force than Title III does for the U.S. work force. If a program similar to the IAS existed in the United States, the number of people seeking services from JTPA Title III might well increase.

So far, in a number of respects, the Title III program seems to be working in accordance with major emphases in the law. The Federal role is minor, and States are in control of the program. The influence of the private sector is strong, particularly in the emphasis on placement, low costs, and marketing the program to potential employers. The act's limits on administrative and support services have been satisfied.

Whether Title III is an effective and sufficient response to the problem of worker displacement is questionable. One important question is whether the heavy emphasis on placement may divert attention and resources away from training. The limited information available on program spending indicates that vocational skills training in Title III programs is probably sparse. Generally, the majority of displaced workers are much more interested in returning to work than in training or education, although a significant minority of the people may become interested in training opportunities. While retraining for strictly "high-technology" skills and occupations may have been overemphasized in the past, training is still a very important component of well-run displaced worker programs. For many displaced workers, training is the

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[7] The eligible population in 1983 was roughly 3 million workers, based on the BLS survey which found 11.5 million people had lost jobs due to employment cutbacks from 1979 to 1983. Although BLS defines only 5.1 million of these people as displaced, holding the former job for 3 years is not a requirement for eligibility in most States.

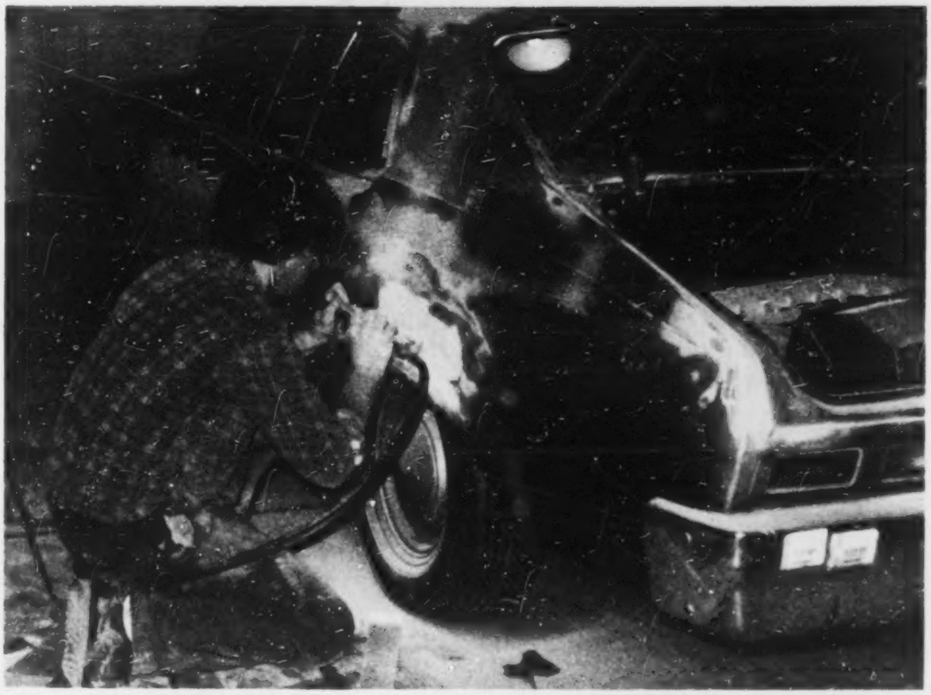

Photo credits: Downriver Community Conference

In well-run retraining programs, workers may be trained in both traditional and high-technology occupations.

best route back to a job with reasonable opportunities for advancement. This is particularly true for unskilled or semiskilled manufacturing production workers, whose former jobs were based largely on routine manual and mental skills. Many of these people need substantial retraining or education to get good jobs in the service-producing sectors, where most new jobs are being created.

In well-run programs such as the Downriver Community Conference in Wyandotte, Michigan, and the reemployment program at the former Ford assembly plant in Milpitas, California, a substantial minority of workers—20 to 35 percent—are likely to choose and benefit from vocational skills training. It should be emphasized that these percentages would be much lower without these programs' strong commitment to counseling and encouraging workers who are qualified to consider training.

A substantial barrier to retraining for displaced workers who are interested and qualified is that few adults can undertake it without income support. Basic unemployment insurance (UI) benefits, lasting 26 weeks, are the main source of income for most workers in training. Some training institutions and programs have adapted effective courses to fit this constraint, but by no means all. Extensive training, without other sources of financial support than basic UI, is often infeasible.

Judging by available numbers on spending, emphasis on and commitment to training may not be characteristic of JTPA Title III projects. In the initial 9 months of Title III, spending per worker averaged $768 and in the following program year $895, far less than the approximately $3,000 spent on each worker at the Ford Milpitas plant, where training—usually the most expensive service offered in any displaced worker project—was emphasized heavily. However, information on Title III program spending and services are both too limited and too out-of-date to judge the effectiveness and appropriateness of the program's training component.

Another concern is the low priority most State Title III programs give to remedial or brush-up education for displaced workers, even though displaced workers who lack good basic skills will increasingly be forced to take low-wage jobs. A substantial proportion of U.S. workers are poorly equipped to learn new job skills, except for relatively elementary ones, because they have deficiencies in basic education, or use only a narrow range of job skills that do not transfer easily to different occupations.

While estimates of adult functional illiteracy are both outdated and misleading, it is clear that **large numbers of adults lack adequate skills in reading, writing, mathematics, problem-solving, and communication. These people will find it increasingly difficult to compete successfully for good new jobs once displaced, or to qualify for occupational skills training.** Many people require remedial education before they can benefit from other kinds of training.

Lack of basic skills in the work force is a problem for U.S. businesses as well as for individuals. The lack may manifest itself in sluggish productivity growth, increased needs for supervision, and deficient product quality. These costs are difficult to quantify but are probably substantial. While private firms can and sometimes do provide basic education to employees, many employers feel, with some justification, that it is the job of the public school system, not business, to make sure that people enter the work force with adequate basic skills.

Retraining programs, which usually stress placement, often do not emphasize basic skills or remedial education. As a result, many people with basic skills problems receive no help at all from Title III projects. Few States have made remedial education an integral part of Title III services, although some with large numbers of non-English speaking workers have given it considerable attention. Most State directors of Title III programs see little need for providing remedial education, because they believe displaced workers have adequate basic skills, because remedial education is available elsewhere, or because of lack of interest on the part of the displaced workers. Project staff who work directly with displaced workers often see the matter differently; a number of projects have reported that one-fifth to one-third of their clients cannot read or figure at the sixth-grade level. Many displaced workers lack the basic skills which would qualify them for good new jobs or for training in skilled occupations. This is especially true of those who formerly held semiskilled or unskilled jobs—the same workers who are especially vulnerable to displacement. Displaced worker programs can offer very effective remedial education services, as some outstanding individual projects have shown.

Of course, overcoming basic skills deficiencies is the responsibility of the individual as well as that of society. In many areas, federally supported remedial education can be had at little cost except time and effort. However, demands for free remedial education are often greater than the supply and waiting lists for publicly funded remedial education classes exist in some areas. Even so, the majority of adult workers with basic skills deficiencies do not apply for remedial education, due to scheduling problems, inadequate motivation, or lack of self-confidence. To reach these people, more extensive outreach efforts are needed and, in many areas, additional service.

State directors do see a need for early warning of plant closures and large layoffs. This would allow States to begin offering assistance before workers are out of jobs. This service is permitted by JTPA but is difficult to provide without advance information about layoffs. Several States have put considerable effort into offering services and information to workers before they lose their jobs. These programs attempt to find out about impending layoffs by enlisting voluntary cooperation of companies. Typically, when the rapid response teams learn about a planned plant closing, they mobilize the local Employment Service (ES) office, the State education and training authorities, and community social service agencies to make a plant visit acquainting the soon-to-be-displaced workers with the options open to them. States vary in their ability to provide quality pre-layoff services. Some simply point the workers to services available from established agencies, but a few have developed an integrated set of services, *including special efforts* to find new jobs before the layoffs occur.

Some companies try to provide advance notice of large layoffs or closings voluntarily; others are required to do so in the bargaining agreements with their unions. Others provide little or no notice. Many workers receive only 2 weeks notice, or less, at the end of their jobs. Over the past decade, the Congress, at least 20 States, and several localities have considered legal mandates for advance notice, but there is little actual legislation. Three States—Massachusetts, Michigan, and Wisconsin—encourage voluntary advance notice, but only one State statute (Maine's) requires it.

Some workers will not take advantage of adjustment services early, but having them available is important to boost workers' morale and allow them to plan ahead. It is also important to offer training while workers are eligible for the maximum amount of unemployment insurance or other forms of income support. It must be noted, however, that early notice does little good if there is no program available offering reemployment and retraining services to the workers. Despite the efforts in some States to provide a rapid response to plant closures and layoffs, it appeared in mid-1985 that many States were still not adequately organized to offer adjustment services promptly. Delays of several months in delivery of Title III services were not uncommon, even though response times have improved since the Title III programs officially began in October 1983. Some projects have nonetheless done an excellent job. The Ford Milpitas project was an outstanding example of a prompt, positive response to plant closing. Important factors in its success were the 6-month advance notice required by the Ford-UAW bargaining agreement; early provision of an array of effective services; the excellent leadership provided by Ford staff and UAW members, who together ran the program; and the help provided by agencies of the State of California.

At the Federal level, advance notice legislation has been introduced in every Congress since 1974, but none has been adopted. A bill that reached the floor of the House in November 1985 was voted down by a close margin. Opposition to advance notice is based on arguments: 1) that the requirement burdens business, forcing companies to keep troubled establishments open longer than is economical; and 2) that advance notice can have perverse effects, undermining the morale of the work force and the confidence of suppliers, customers, and creditors. Proponents argue that businesses in European countries and Canada are able to comply with advance notice requirements; Canadian officials report that difficulties with early notification are not an issue. Experience also shows that worker morale can stay remarkably high after a plant closing announcement, so long as effective readjustment services (which Title III can make available) are offered promptly. However, advance notice might impose additional burdens on business and probably would increase demands—and spending—for readjustment services.

Another issue is whether the Title III program will receive reliable, sufficient funding. Two years after the program officially began, Congress voted to cut Federal funding for the program by 55 percent, from $223 million in fiscal year 1985 to $100 million in fiscal year 1986. In proposing the reduction in early 1985, the Administration cited low demand for expensive classroom training, a lower-than-expected rate of spending, and a large carryover of unspent funds. Department of Labor (DOL) officials argued that the cut would not affect levels of service, because of the carryover funds (which amounted to $184.5 million on June 30, 1985, the end of the program year). The National Governors' Association, representing the States, strongly opposed the reduction, arguing that most States had fully obligated their Title III funds at the end of the program year; that spending is on a rising curve, as States get more experience with their newly established Title III programs; and that the cuts would force sharp reductions in services to displaced workers in many States.

The General Accounting Office presented evidence that, because of differences in rates of spending and carryover funds among States, 23 States would have less money for services to displaced workers in 1986 than was allocated to them in 1985. Most Title III funds are allocated among the States by a formula that is written in the law, so that changing the allocation would be difficult. Thus, the overall reduction in funding might mean that States which began an active displaced worker program early and spent most of their allocated funds would have to cut back services. Congress responded to this concern by directing the Secretary of Labor to give adversely affected States first priority for Title III discretionary funds, which are not allocated by formula but are granted at the discretion of the Secretary. What effect these funding changes will have on the stability, quality, and level of services to workers is not yet clear.

A problem that became evident throughout 1985, as Congress considered JTPA budget and appropriation proposals, is that information on Title III program spending and services is neither timely nor adequate. States are required to submit reports on their Title III programs only once a year, covering activities through the end of the program year, June 30, and due 45 days later. The reports usually are not complete until several weeks later. Thus, in the spring, summer, and early fall, when Congress is considering the budget for the following fiscal year, the most recent State reports on program activities are several months to more than a year out of date.

In April 1985, for example, when Congress considered the Administration's proposal to rescind Title III funds for fiscal year 1985, the State reports were nearly 10 months old. Congress did not act on the rescission. In mid-September, when congressional committees were marking up and voting on JTPA funding bills for fiscal year 1986, these State reports dating from June 1984 were still the latest available on Title III activities. More recent data, drawn from State reports for the program year ending June 30, 1985, became available only in the last few weeks before Congress took final action on JTPA funding. The infrequency of the reports lessens their value for oversight of the program as well as for budget decisions.

The sparsity of data in State Title III reports is also a problem. The Labor Department requires that they record only the amount of Title III funds spent during the program year; numbers of workers served, numbers officially leaving the program, and numbers placed in jobs; and a few characteristics of the workers finishing their stay in the program, such as age, sex, race, and level of education. The reports do not record obligation of funds by the end of the program year, only spending; nor do they provide information on how many workers are receiving what kinds of services (e.g., vocational skills training in institutions, remedial education, relocation assistance, job search assistance, and on-the-job training).

Other Federal Programs

While JTPA Title III is the first comprehensive Federal program offering assistance to displaced workers in nearly two decades, other Federal programs and agencies also play a role. The most important are Trade Adjustment Assistance (TAA), providing compensation and adjustment services to workers displaced as a result of foreign competition, and the ES, the long-established job placement service open to every worker in the United States.

Trade Adjustment Assistance was established in 1962, but served very few workers until requirements for eligibility were liberalized in 1974. The number of workers served by TAA peaked in 1980, at 585,243. The program has been cut substantially since 1981, when Congress redefined and limited TAA income support payments. In 1984, 29,300 workers were served. Spending peaked at $1.6 billion in fiscal year 1980, and declined to approximately $56 million in fiscal year 1984.

In the past, TAA was criticized for providing mostly income supplements, with few real adjustment services. In the mid-1980s, the emphasis has shifted to training and helping eligible workers look for work in more promising areas and relocating. In 1984, 24,000 workers received income support payments, 6,538 entered training, and 2,382 were given relocation assistance.[8] Outlays for training in 1984 were $18.5 million, compared with $5.2 million in 1980.

For eligible workers, TAA provides some significant benefits which JTPA Title III does not. TAA income support payments can last as long as 18 months for workers in training, and relocation assistance is more generous than under JTPA. TAA support has made it possible for some workers to complete longer term training than they could otherwise have afforded, and encouraged some relocation out of depressed areas.

The status of TAA was uncertain as this report was completed (in December 1985). Up for reauthorization in 1985, TAA was temporarily extended by Congress through December 19. However, Congress adjourned for the year without completing action on a budget reconciliation bill that proposed a longer term reauthorization for TAA. Meanwhile, under the continuing resolution, TAA-eligible workers can continue to receive retraining and relocation assistance, but not income support, through the end of fiscal year 1986. Hence, authorization for TAA technically expired, but the 99th Congress was expected to give further consideration to the program in its second session. One major argument against TAA is that it is difficult, and possibly inequitable, to try to distinguish among displaced workers by cause of displacement and single out one group for special treatment. The Administration, arguing that Congress should allow the program to die, held that TAA is unnecessary because JTPA programs offer adequate services to all displaced workers, and because the Unemployment Insurance system provides income support to all unemployed workers. On the other hand, TAA may be warranted as the price of liberal trade policies that benefit society as a whole. Also, the program may help to ease protectionist sentiments among workers and industries affected by trade.

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[8] The degree of overlap in these figures is unknown.

The ES system administers UI payments, often the only source of financial support unemployed displaced workers have. The national network of federally funded Employment Service (ES) offices provides free services such as placement or helping clients to learn job search skills. It generally serves a small segment of the labor market; when last surveyed, only about 5 percent of people looking for work reported they found jobs through their local ES office. Although ES offices can offer additional services such as skills assessment, job counseling, job development, and referral to suitable training, most do not have the resources to provide these services to any but a few clients. Title III projects often buy these services from the local ES office. To expand the services to all clients, the ES system would need additional resources.

Congress has shown a special interest in two of the services provided by the ES. First, JTPA, like previous employment and training laws, calls for the establishment of a computerized interstate job bank and job matching system. This goal is only partially fulfilled by the Interstate Job Bank, in operation since 1984. The bank's coverage is limited to hard-to-fill technical and professional jobs, and it is by no means fully automated; many offices send job orders to the bank by mail. An intermediate step providing improved labor exchange information would be to upgrade and automate intrastate job banks, so that information on job openings and applicants could be quickly available throughout each State. For States with compatible systems, electronic communication or networking would be a possible next step.

Full automation of either the interstate or intrastate job banks would require upgrading many State systems, and this upgrading could require substantial outlays of funds. One estimate, made by a committee of the Interstate Conference of Employment Security Agencies, was at least $240 million in capital outlays spread over 5 years. This figure does not include software, personnel training, and transmission equipment; on the other hand, it does not reflect savings in maintenance and operation that can be expected from using a modern, efficient system. Thus, the cost of a fully computerized, on-line, interactive national job bank has not been estimated.

It is not certain that the expense of full computerization and extension of the Interstate Job Bank to cover lower paid, lower skill jobs would be justified, particularly since the interstate system would be useful only to workers willing to relocate. However, a system that could help displaced workers get jobs in distant locations might help encourage some displaced workers from communities where job prospects are poor to relocate. Moreover, improved, automated job banks might work more effectively, thus encouraging more employers to list jobs and more qualified workers to apply. Currently, there is no reliable information on the full costs and potential benefits of automating the Interstate Job Bank. Before launching into a full-scale effort to automate, a comprehensive analysis of such costs and benefits is needed. The analysis should include a comparison of a centralized national system with several ways of linking individual automated State systems.

JTPA also requires the Department of Labor to assist States in providing detailed information on local labor markets. The weakest element in local labor market information is data on occupations currently in demand. For many local labor markets, it is difficult to obtain this information. The Department of Labor has provided some assistance to States in this area, in connection with national occupational surveys, but many State ES systems do not have the expert staff and funds needed to analyze the information available through DOL surveys. With reductions in Federal funding over the last few years, some State ES offices have taken major cuts in research and analysis. The Administration opposes Federal assistance to States for labor market information programs not targeted for national purposes, and proposes to cut the small amount of funding currently available to States for local labor market planning information.

Non-Federal Programs

Some State programs and collective bargaining agreements also contain provisions to help displaced workers. In addition, many of these programs are set up to train active workers to avoid displacement. Retraining of active workers is not authorized under JTPA Title III. California has a program funded at $55 million per year for retraining both displaced workers, and active workers who are in danger of losing their jobs unless they are retrained. The California Employment Training Panel is paying, for example, for the retraining of tellers and clerical workers of a major bank, where workers might otherwise lose their jobs as the bank automates and closes branch offices.

Both General Motors and Ford have agreements with the United Auto Workers (UAW), providing that money be donated to a retraining fund on the basis of hours worked by union production employees. The Bell companies also have agreements with the Communications Workers of American to fund retraining of their employees. A major advantage some projects have found in using the private training funds is that they are available immediately. They can be used to start up services to workers promptly, without waiting until States or the U.S. Department of Labor provide JTPA funds—a process that often takes months.

Another strategy that some States and local governments have adopted is to assist firms threatened with failure to stay in business. This helps maintain not only jobs but the economic life of communities. While many enterprises cannot be saved without continuing subsidies, some plant closings are avoidable. Community or State assistance may help keep some businesses afloat when certain conditions are met. First, there must be enough time to devise and implement a strategy to improve the ability of firms to compete; often, this means a year or more. Second, there must be a reasonable likelihood of profitability once a strategy is implemented. Finally, both labor and management must be willing to make some sacrifices. Even if all these conditions are met, some jobs may be lost as firms become more efficient and raise productivity. However, successful community and State assistance to troubled firms can preserve some employment which would be lost if the businesses failed.

Foreign Programs

Labor policies to avoid displacement, to assist workers who are displaced, and to offer retraining to adult workers have generally been less active in the United States than in some other industrial democracies. Most European countries and Canada have programs designed to deal with displacement. Even in Japan, where the active government role is small, social and business customs often provide a high degree of security for some of the work force (primarily males). Many of these foreign programs are considered successful, but probably would not transfer well to the United States. However, elements of them can be instructive.

Sweden's adult training programs and employment services are generally considered effective at finding jobs for people and, when there are few jobs to be had, at providing adults with excellent opportunities to acquire new skills. This effectiveness stems partly from the involvement of business and labor in determining what kinds of training are needed. Laid-off Swedish workers who cannot find work usually enter training, which gives them new skills and may enable them to get new jobs. This also keeps the unemployment rate low, since workers in training are not considered unemployed. To the Swedes, paying income support for people in training is preferable to paying unemployment insurance, and it upgrades the work force. For people who do not require training, individualized job-hunting services are provided. Advance notice of plant closings allows rapid response to avoid long layoffs.

The Swedish system of dealing with displacement has many elements that would be impractical in the United States. It is extremely expensive—Sweden's labor programs account for 2 to 3 percent of its gross national product (GNP)—and rely heavily on subsidies to industries to keep people employed. Its main beneficiaries are employed workers, while new entrants to the labor market do not enjoy the same access to services. The system also may tend to discourage worker mobility, and relies on immigrant guestworkers to take the less secure jobs. While Swedish labor policies have kept the unemployment rate low—less than 3.5 percent even during the recent recession and 3.3 percent in 1984—the Swedish economy is not without troubles. Inflation in Sweden has been higher than in the United States for over a decade; personal taxes, too, are higher in Sweden. These drawbacks, however, are not necessarily a result of specific Swedish labor policies and some elements of the Swedish system—effective worker training, early notification of layoffs and rapid response, and labor-management involvement in determining training needs—might be adaptable to U.S. conditions.

Canada is another source of useful examples. At a modest cost to the taxpayer, Canada's IAS (formerly the Manpower Consultative Service) gives effective reemployment service (not including retraining) to workers displaced by plant closings or large layoffs. Promptly after learning that a layoff is planned, IAS offers to help establish a labor-management adjustment committee whose job is to place the laid-off workers as soon as possible—often before the layoff occurs.

With a small field staff of 66, and a budget of $8 million, the IAS provided several kinds of employment services for about 120,000 workers in fiscal year 1982-83.[9] Some 36,000 of these workers were displaced in plant closings or mass layoffs and received plant-based adjustment services at a cost of $6.1 million ($171 per worker), of which the government contributed $3.9 million ($108 per worker). Over the years (except during deep recession) the labor-management committees formed with IAS's help have found jobs for about two-thirds of all the workers involved in the layoffs, usually within a year or less.[10] IAS offers its services in all cases of layoffs involving more than 50 people, and will step in where smaller numbers of people are involved if asked.[11] If the offer is accepted, which is nearly always the case, IAS provides an experienced, independent chairman (usually a retired businessman) to help the committees get established and do their work. The IAS role is strictly facilitation; the effort at the plant level is by labor and management, not by labor, management, and government.

The major thrust of the IAS program is reemployment. The committees provide no training, although they may refer people who desire training to one of the institutions participating in Canada's extensive system of adult vocational education. IAS costs are modest, averaging $10,000 to $20,000 per plant served.

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[9] Services provided by the IAS, in addition to the placement assistance for victims of plant closings, include work-sharing and technical assistance to firms in temporary crisis; retraining assistance for workers in firms undergoing technological change; and training of skilled workers for new and expanding firms.

[10] The committees generally finish their work, and then dissolve, in about 1 year. Usually, followup studies are not done, so that there is little information about what became of workers who did not find jobs through the committees; presumably some find jobs on their own, some remain unemployed after the committees dissolve, some leave the labor force, and some may enter training.

[11] Workers who are part of closings or layoffs involving fewer than 50 people are eligible for Canadian unemployment insurance, vocational education and training, and the services of the Canadian employment service. IAS also offers services when fewer than 50 workers are involved, but advance notice is not required in these cases.

Adult vocational training in Canada is well-funded and heavily attended. The Canadian Government spent over $1 billion (over 1 percent of its budget) in the 1983-84 fiscal year on adult training, including income support for trainees.[12] Approximately 277,000 people enrolled in the national adult training program that year. People who are eligible for this training are adults referred by one of Canada's publicly funded Employment Centres or the IAS. Employed people can take advantage of Canadian job training too, although higher priority in some programs is given to training for the unemployed.

Income support for unemployed or partially employed trainees in Canada can be extended for up to 2 years. This income support is one reason that many Canadian workers are able to take much more extensive training than people in JTPA-sponsored training; the average length of stay in Title III projects for those who take classroom training is currently about 22 weeks, some of it spent in activities other than training (e.g., testing, assessment, counseling, and job search). About 20 percent of the people enrolled in Canadian adult training in 1983-84 were in remedial education. Training in basic educational skills, less emphasized in the United States than in Canada, is probably needed to about the same extent in both countries. The Canadian Government also emphasizes training in "critical skills" occupations—those considered important to the national economy and in which shortages are anticipated. Although some of these critical skills occupations are high-technology—robotics technicians and computer hardware specialists—many are not, such as machinists, tool and die makers, welders, offshore drillers and derrick workers, millwrights, and chefs. It is not clear whether the emphasis on critical skills is very effective. It is difficult to identify what skills or occupations might be in demand, even in the short run.

While Canadian vocational training is extensive, it is probably more effective in helping trainees to get better paying, more highly skilled jobs rather than in helping to combat unemployment. The Canadian unemployment rate has been higher than that of the United States for more than a decade; in 1984, the rate was still over 11 percent.

Elements of the Canadian system which could be useful in the United States are an IAS-like system, or some other flexible, quick, plant-based response to large layoffs; and the excellent access to vocational and remedial education offered to adults, along with income support to make extensive training possible.

Design and Performance of Displaced Worker Projects

Within the framework of JTPA, there is considerable room for different kinds of services and different ways of offering them. This flexibility is one of the strong points of the program, since different areas and different groups of workers have different needs which rigidly prescribed projects might not serve well. However, while it is important to tailor displaced worker programs to the appropriate workers, communities, and economic circumstances, there are some elements of program design that tend to make all projects more successful.

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[12] There is no comparable figure for the United States. The United States has no program which offers free vocational education and income stipends to adults who have been referred to training by the Employment Service.

Projects that have active cooperation of labor and management as an integral part of reemployment efforts are more likely to be effective than projects without such support. Employers, particularly with the cooperation of labor, can make important contributions to displaced worker projects. At the Ford Milpitas auto assembly plant, for example, Ford gave the plant's industrial relations manager a free hand when the plant closing was announced to "do what was right." In this case, the right action meant personalized counseling on benefits and retirement, testing of every worker who wanted education or skills training courses, a great emphasis on and variety of vocational training, remedial education offered in the plant at convenient times for workers, a determined search for local job openings, and letting people take new jobs before the plant closed without loss of severance pay. These services began months before the plant closed and continued at the plant for 16 months after production ended, with a company-paid skeleton staff available to run the services. The Milpitas project cost between $5.6 and $7.2 million (depending on how the resources provided by Ford are valued), and served 1,997 workers at a cost of $2,800 to $3,600 each. In addition to company money, funding came from the State of California, JTPA Title III, a retraining fund provided as part of the Ford-UAW bargaining agreement, and TAA.

By almost any standards, the Milpitas effort was outstanding. Until the day the plant closed —6 months after the announcement—quality and productivity continued to rise. On the date that services officially ended (Sept. 1, 1984), 83 percent of those looking for work had found jobs: 1,460 people were employed. Five hundred had retired or were within a few months of retirement; 118 were still in training; and 308 people were unemployed.

While public funding and the health of the local California economy were important elements in this success, this should not minimize the role of prompt action based on labor-management cooperation that already existed at Milpitas. This was not always the case: labor-management relations were rocky through the 1970s in the plant. In 1979, a new plant manager took over, committed to the idea of employee involvement that Ford and the United Auto Workers had just written into their national contract. Employees were encouraged to solve problems cooperatively with management, and supervisors began to listen to shop floor workers' ideas on improving quality and productivity. By 1982, the Milpitas plant was at the top of the Ford assembly division for productivity and quality. While this effort was not sufficient to keep the Milpitas plant open in the face of intense world competition—the plant apparently closed because of the expense of transporting cars from the

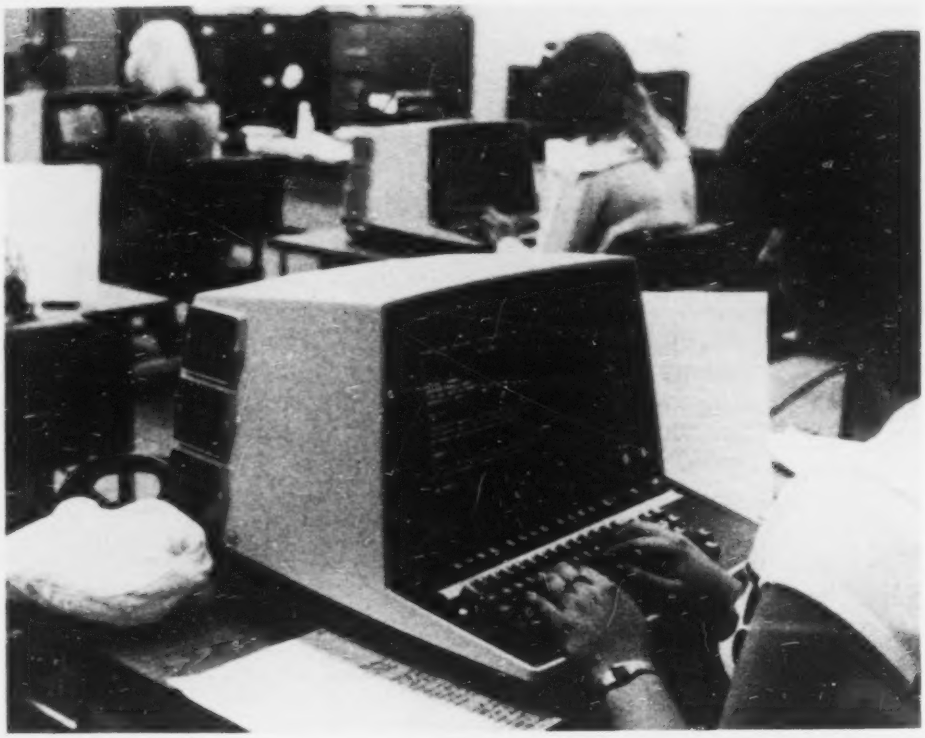


Photo credit: Downriver Community Conference

A worker learns word processing in a retraining program run by the Downriver Community Conference.

California plant to the rest of the Nation and because of general contraction of Ford—the foundation of good labor-management cooperation was a critical element in the success of the reemployment program at Milpitas.

Employers usually have networks in local business communities, which can be effective at finding out what firms are hiring and what occupations are in demand and at sponsoring or promoting former employees to other business people. Employers and labor-management teams are also likely to know the strengths and skills of their own workers and can be effective at recommending qualified workers for new jobs. Also, workers are more likely to take advantage of services offered by employers if they already have good relationships with management, as is often the case in plants with effective labor-management teams.

Another feature of projects that serve the spectrum of displaced workers well is a full range of services, from job search assistance to training. Projects that offer a broad range of services are likely to meet the needs of a diverse group of clients under different economic conditions, not just a single group of those easiest to serve. However, in differing economic circumstances, different services may need more emphasis. In prosperous times and areas, job search assistance may be effective for the majority of workers entering programs. In communities facing longer term economic decline, vigorous relocation efforts may be needed. Finally, during recessions or in areas where jobs are hard to find, more workers usually are interested in training for new occupations.

Adult Education in the United States

Most displaced workers, even if they have received a few months' notice of layoff, do not have the time or the resources to devote to formal, full-time educational programs; moreover, many are not interested. As a result, many institutions offering adult education often play a relatively minor role in displaced worker projects, with some notable exceptions. For example, many community colleges and vocational/technical schools are involved in displaced worker projects. However, adult education institutions could be more active in retraining and educating displaced workers, if some extra attention is given to designing programs specifically for displaced adults. Such programs can also be a major force in providing people with skills that will make them less vulnerable to displacement ("preventive training"), or prepare them for finding a good job more readily if they should be displaced.

Both basic and career-oriented adult education will need to adapt to significant changes in the demography of the work force in the next few decades. The U.S. work force is aging, reflecting the aging of the baby boom generation, now in its prime working years. By the year 2000, half the labor force will be middle aged (35 to 54), compared to only about 35 percent today. This demographic trend, together with changes in jobs brought about by changing technology, will mean that more older workers than in the past will periodically need to refresh basic educational skills and learn or upgrade job skills. Much of this upgrading is likely to happen on the job, but some will come through the formal system of adult education. Historically, however, older workers are significantly less likely than the young to seek adult education. **Educational institutions may need to make changes in program design, curricula, logistics, and outreach efforts to attract more older workers.**

Like older workers, less educated and unemployed people also tend to take little advantage of adult education. Part-time enrollments in adult education more than doubled between 1957 and 1984, and 60 percent of the students take courses for employment-related reasons. However, participation rates are much higher among those who are employed and well educated than among those who are not. Participants are also much more likely to be in management, administration, and technical or professional occupations than lower level white- and blue-collar jobs.

The same pattern prevails among people who receive education at an employer's expense. Private business plays a crucial role in funding and delivering education and training to adults, providing probably more than half of all job-related education and formal training to adults through in-house courses or arrangements with outside institutions. The most likely recipients of such assistance, however, are white,

Photo credit: UAW-Ford Employee Development and Training Program

A UAW-represented Ford employee gets one-on-one instruction in a Basic Skills Enhancement session at the Ford Dearborn Engine Plant. This feature of the UAW-Ford Employee Development and Training Program is designed for people with fundamental educational needs.

well educated, and in higher level managerial, administrative, and professional jobs. Some private firms make adult education more accessible to blue-collar and lower level white-collar workers through employer-supported education programs. Recent collective bargaining agreements emphasize education and training more than in the past, and some firms conduct basic education programs for their workers. Additional education and training could be offered at low cost through partnerships of business and local educational institutions. Many high schools, if asked, will provide adult basic education at the worksite, a union hall, or other facilities convenient to workers. Community colleges are often willing to adjust course locations and times to fit the needs of adults and local labor markets as well. Some unions also have active education and training programs, which often entail partnerships with educational institutions.

The Federal Government plays a substantial direct role in funding some kinds of adult education. Nearly half the costs of State and local remedial education programs are provided by the Federal Government, for example, and the Federal Government also picks up a substantial portion of publicly supported vocational education programs that are specifically targeted to adults. For most other continuing education programs, the Federal Government plays a minor direct role, compared to States and private business. The indirect role, however, can be large.

The expenses private employers incur for adult education can be deducted from Federal taxes as normal business expenses, and individuals can deduct expenses for education directly related to their current jobs. The Federal Government is also the largest single provider of adult education and training, particularly in programs offered by the Department of Defense.

Another potential Federal role is in developing and adapting instructional technologies to adult education, sharing more of its own experience in training technologies with the private sector and educational institutions. Many new educational technologies—including television, videotape, videodisk, and computer-aided instruction (CAI)--can significantly improve the quality of adult education. Television and CAI can help overcome geographic and scheduling barriers to adult education, and some CAI programs have considerable potential for use as a supplement to instructors in adult basic and vocational education. Many of these technologies were initially federally funded. The Department of Defense, for example, was instrumental in the early development of computer-based instructional programs, interactive videodisk systems, and various simulators and emulators used in training.

There is evidence from several projects that well-designed CAI materials can help adults learn quickly and well. In some comparisons with conventional classroom instruction, CAI has been shown to cut instruction time by 25 percent or more, and adults in these CAI classes did somewhat better on tests than adults in the control groups. Interactive videodisk systems are highly promising for providing a wide variety of vocational skills training. Several factors, in addition to the new computer technologies, have contributed to the success of new educational technologies in both basic and vocational education programs. Many of the projects benefited from closer attention to project design, greater efforts to encourage participation, and more training of instructors (paid and volunteer) than is typical in most adult education projects. In CAI projects, the computer rarely stands alone; rather, it works best as a supplement to, rather than a replacement for, good instructors and volunteers.

CAUSES OF DISPLACEMENT

Workers are considered displaced when some permanent and structural change has occurred, either in the economy as a whole, in some sectors, or in their own firms. People who are unemployed as a result of cyclical changes in the economy are not generally considered displaced, although when cyclical downturns are deep and long lasting, as in the back-to-back recessions in the early 1980s, it can be difficult to distinguish cyclical from structural unemployment. The result, for the individual, is often exactly the same. For the typical displaced workers in the early 1980s—steelworkers and autoworkers—it mattered little whether their distress resulted from displacement or a cyclical downturn. Both unemployed steelworkers and autoworkers were told, during the early 1980s, that their jobs were probably gone; that it was time to make a major change.

The outcomes for these two groups of workers illustrate some of the difficulties in trying to identify who and how many people are displaced at any moment. Unemployed steelworkers, displaced from an industry where competitive problems date back two decades or more, are still suffering the consequences of displacement. Employment in the steel industry in 1985 is lower than it was during the depths of the 1981-82 recession; even optimistic observers expect steel employment to continue to fall.

Autoworkers, on the other hand, have been recalled in much greater numbers than many analysts expected. Employment in motor vehicles and equipment averaged 860,000 in 1984, below its peak of over 1 million workers in 1978. Since 1982, however, total employment in the industry has increased by nearly 168,000, with the number of production workers increasing by nearly 157,000.

Both industries have sacrificed technological leadership to Japan and other foreign competitors, and both have suffered from sharpened competition from imports. Wages in both the steel and automobile industries are above the average for manufacturing; in 1984, the average hourly earnings of production workers in steel was $12.99, and in autos $12.74, while the average for all manufacturing production workers was $9.18. Both industries have responded to competitive pressures by seeking trade protection and by modernizing and automating plants. Employment in both industries has contracted, although the contraction of steel employment is far more severe. In other words, both industries have experienced all the forces causing displacement and have reacted to them in nearly the full range of ways.

The long-term outlook for automobile employment is not yet clear. During most of the recovery from the 1981-82 recession, the auto industry was protected by a restrictive Voluntary Restraint Agreement (VRA) with Japan, which significantly limited the number of Japanese automobiles in the U.S. market. The VRA expired in March 1985, and since then Japanese imports, though still restrained by an edict of the Japanese Ministry of International Trade and Industry, increased dramatically, rising from about 1.85 million in 1984 to an annual rate of 2.9 million in June 1985. Increasing imports, without continued growth in overall demand for automobiles, will affect U.S. employment.

Also, the recovery of automobile employment has been boosted by the rebound in large car markets, helped along by falling petroleum prices and stable gasoline prices. This rebound apparently leveled off in early 1985. Lower oil prices could last for a few more years, but it will be a challenge for U.S. automakers to maintain their market share. Meanwhile, to remain competitive, the auto industry will continue to automate, which also reduces jobs.

As experience in both industries indicates, the causes of displacement are technological change and international competition. Both terms cover a variety of factors that cause displacement, including labor-saving innovations, offshore production and outward processing, import competition, and loss of export markets.

Firms which face intensified competition from foreign producers often respond by automating domestic production in an effort to lower costs and meet the competition. Even this may not save many jobs; in some industries, even highly automated systems are readily transportable to lower wage countries. Other responses include shifting into less threatened product lines, moving operations offshore, or, when these strategies fail, shrinking or going out of business. All of these responses can displace people. Whether such displacement is trade- or technology-related is often impossible to determine. Analyses that attempt to separate the employment effects of trade from those of changing technology or increased labor productivity often miss the critical links between foreign competition and changing technology.

Technological Change

The number of jobs available is the result of a variety of strategic choices, including choices of technology. Often, the choice is to replace human labor with technology, a factor that has helped double output per labor hour in the United States since World War II. At the same time, a growing population and rising affluence—thanks in part to the rising productivity made possible by the capital-for-labor shift—brought increasing demands for goods and services. The increasing demand, together with new products made possible by new technologies, were major factors in the growth of U.S. employment.

Labor-saving technology can have a job-destroying effect, but the drive for greater labor productivity can help maintain or increase the ability of U.S. firms to compete with foreign producers. However, greater labor productivity, by definition, means that fewer workers can produce equivalent output; unless demand for output rises faster than productivity, jobs will be lost. At the same time, without productivity increases, declining competitiveness may cause even more jobs to be lost. Changing production technology often saves some jobs at the expense of others.

Increasing productivity, in the face of slowly growing or level demand, has cost jobs in the textile, automobile, and other industries. While some sectors, such as computing and telecommunications equipment manufacture, can look forward to rapidly rising demand for products and probably increases in employment, many others are likely to lose employment as demand grows more slowly than productivity. Competition from products made abroad increases the need to boost productivity and intensifies the resulting downward pressure on employment in affected industries. Manufacturing industries, because they make a product that can be consumed far from its place of origin, are especially vulnerable to foreign competition. And indeed, as has been shown, half the loss of jobs due to displacement (as defined by the BLS) in 1979-83 were in manufacturing, which accounts for less than 20 percent of employment. The 1981-82 recession certainly was responsible for some of those job losses, and the high value of the dollar is the reason for some continuing losses. The combination of pressures from changing technology and trade mean that declines in overall manufacturing employment are unlikely to reverse and may continue.

Technological changes alter the nature of jobs as well as the level of employment. These effects are not simple and predictable, however. An important factor is that equipment and hardware alone do not govern the way jobs and work can be reorganized. When a new technology replaces human labor in performing some tasks, the remaining tasks can often be regrouped into new jobs in various ways, although the latitude on the part of managers and their technical advisors to redesign jobs has limits. In addition, all the options that do exist often are not apparent. The nature of the jobs may also vary depending on the organization of work throughout the enterprise; the options can range from a high degree of central management control, with narrow, rigidly defined jobs designed to minimize the potential for human error, to a more participatory style, with greater autonomy, variety, and responsibility built into workers' jobs. The range of decisions in redesigning organizations or jobs does have limits, being constrained by the technologies themselves, costs, and such factors as product design and volume, training and abilities of the work force, national policies on quality of worklife, and the politics of the workplace.

Sometimes, applications of new technology have led to de-skilling of individual jobs; for example, jobs such as those of some machinists and telephone operators have been de-skilled as jobs were redesigned to take advantage of computer-based technologies. Yet there are many examples—from offices to factory shop floors—where the adoption of new technologies has led to jobs with broader responsibilities, more skills, and requirements for a better understanding of the entire work process, including one's part in it.

Some of the skills needed to make use of advanced technologies are qualitatively different from the skills many displaced workers possess. Routine manual and mental skills, often learned through on-the-job experience, are vulnerable to technological displacement, while reading, basic math, and problem-solving abilities, combined with social skills, are more highly valued. When factories are automated, for example, the need for semiskilled and unskilled production workers often diminishes, while the need for skilled maintenance and repair people increases. In many cases, the workers selected to learn the new, more challenging maintenance jobs are the ones whose basic verbal, mathematical, and cognitive skills are best. Familiarity with computers and electronic instrumentation, the ability to troubleshoot, and the possession of a broad, conceptual model of complex processes are becoming more important. While this trend does not manifest itself in sudden shifts, it does mean that displaced workers whose former jobs consisted mostly of tasks requiring routine manual and mental skills will have increasing difficulty finding comparable new employment.

If the effect of current technological changes is to raise the proportion of more highly skilled jobs in the Nation's occupational mix, that effect will continue a long-standing trend. Throughout the 20th century, higher skilled occupations such as professional and technical workers, managers, and administrators have grown faster than some lower skilled occupations such as farmworkers, nonfarm laborers, and operatives. It would be misleading, however, to conclude that the economy is moving rapidly toward a future where highly skilled occupations predominate. Millions of lower skilled jobs have been created in fast-growing service industries, which accounted for nearly 95 percent of the growth in employment between 1970 and 1984. In general, service sectors have higher concentrations of both high- and low-skilled jobs than manufacturing (figures 8 and 9).

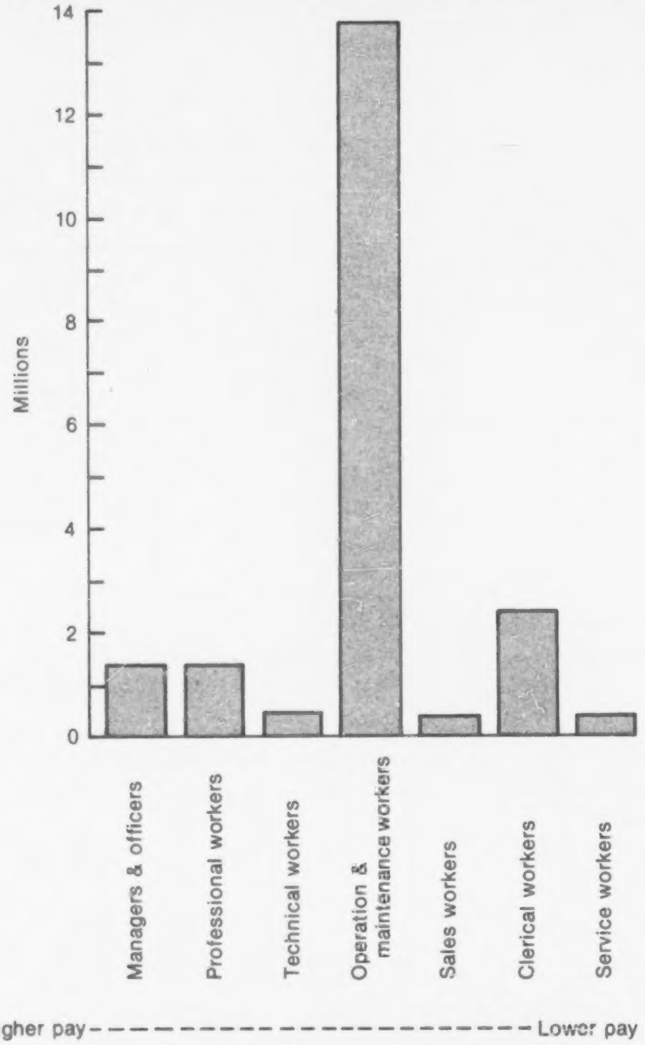
Many of the fastest growing and better paid service jobs require several years of vocational or postsecondary education, but other fast-growing jobs, such as sales work, do not. What is clear is that the number of lower skilled jobs in manufacturing is diminishing, and low-skilled and semiskilled manufacturing workers will increasingly be faced with taking other low-skilled jobs in service-producing sectors, which often pay less than manufacturing jobs, or with undertaking substantial periods of training or education to qualify for more skilled work in either manufacturing or services.

International Competition

Immediately after World War II, relatively few countries were capable of producing many of the goods and services in demand in the United States and overseas, and this country was also more efficient at producing most of these things than any other nation. This has changed. While the United States is still the world's largest producer of goods and services, the number of nations that can produce sophisticated goods and services has proliferated, and their ability to compete with U.S. products has risen greatly. In part, this is due to the fact that other countries are challenging many U.S. sectors in terms of productivity and technology; in part, changes in competitiveness can be traced to higher U.S. production costs resulting from factors such as failure to modernize, inadequate attention to product quality, high wage rates and capital costs, and—a particular problem so far in the 1980s—the high value of the U.S. dollar relative to other currencies.

Over the past two decades, the importance of trade and international competition to the U.S. economy has increased significantly. Trade (imports plus exports) has increased from less than 11 percent of GNP in 1965 to nearly 22 percent in 1985 (figure 10). In the 1960s, the United States consistently ran trade surpluses. These surpluses turned to deficits in the 1970s, and the deficits ballooned in the early 1980s. By 1984, the U.S. current account deficit was nearly $102 billion. The current account balance is the balance on imports and exports of goods and services *plus* the balance on unilateral transfers (including international transfers of funds such as gifts, pension payments, and government

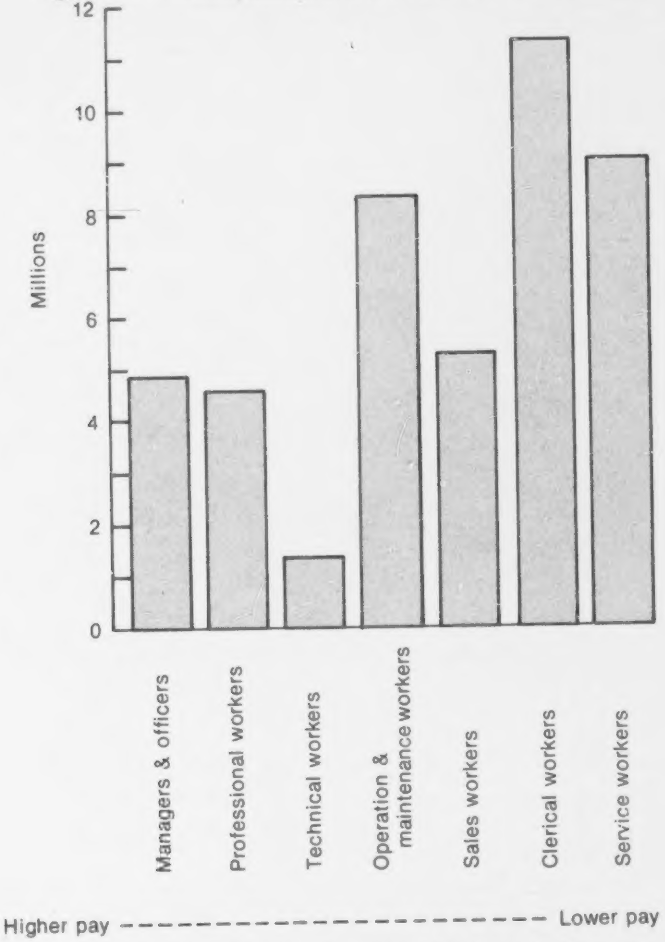
Figure 8.—Manufacturing Occupational Distribution



SOURCES: U.S. Department of Labor, *Occupational Employment in Mining, Construction, Finance, and Services* (Washington, DC: U.S. Government Printing Office, February 1984); U.S. Department of Labor, *Occupational Employment in Manufacturing Industries* (Washington, DC: U.S. Government Printing Office, September 1982); U.S. Department of Labor, *Occupational Employment in Transportation, Communications, Utilities, and Trade* (Washington, DC: U.S. Government Printing Office, December 1984); Earl F. Mellor, "Weekly Earnings in 1983: A Look at More Than 200 Occupations," *Monthly Labor Review*, January 1985.

grants). The merchandise trade deficit, or exports of goods minus imports of goods, was over $107 billion. The United States has run surpluses in services trade for many years, but this surplus has been diminishing, having peaked at over $41 billion in 1981. In 1984, the huge merchandise trade deficit, plus an $11 billion deficit in unilateral transfers, swamped the services surplus of $17 billion. The rising value of the dollar in the 1980s is responsible for much of the deterioration in

Figure 9.—Occupational Distribution in Services

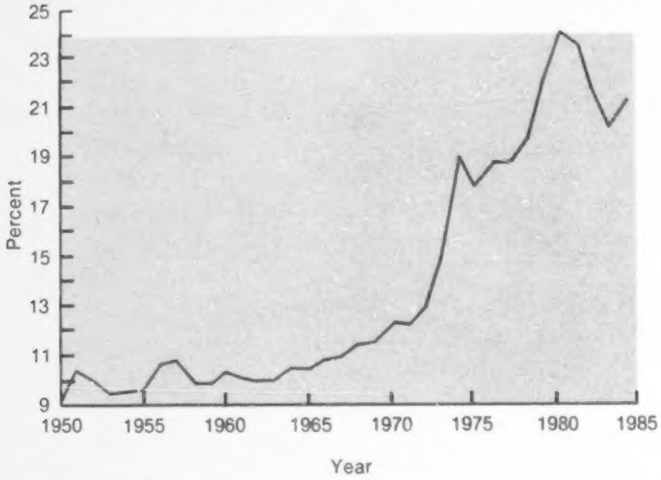


SOURCES: U.S. Department of Labor, *Occupational Employment in Mining, Construction, Finance, and Services* (Washington, DC: U.S. Government Printing Office, February 1984); U.S. Department of Labor, *Occupational Employment in Manufacturing Industries* (Washington, DC: U.S. Government Printing Office, September 1982); U.S. Department of Labor, *Occupational Employment in Transportation, Communications, Utilities, and Trade* (Washington, DC: U.S. Government Printing Office, December 1984); Earl F. Mellor, "Weekly Earnings in 1983: A Look at More Than 200 Occupations," *Monthly Labor Review*, January 1985.

the trade accounts, but a number of sectors had lost competitiveness before this change. Recapturing the competitive edge, even for firms hurt primarily by currency fluctuations, will be difficult.

The trade balance is only one measure of change in international competition. Many U.S. firms have responded to intensified competition by moving production operations offshore, or by sending partially finished products to overseas plants for processing and then reimporting the processed products. Outward processing has become a much more important component of U.S. manufacturing firms' strategy, now accounting for nearly one-sixth of U.S. manufactured imports. Between 1969 and 1983, the value of items assembled abroad increased by nearly

Figure 10.—Trade as a Percent of GNP, 1950-84



SOURCE: Council of Economic Advisers, *Economic Report of the President*, transmitted to the Congress February 1985 (Washington, DC: U.S. Government Printing Office, 1985).

a factor of 12, or almost 20 percent per year. Outward processing is particularly significant in motor vehicles and parts, apparel, and several types of electrical equipment. The most important reason for the increase in outward processing is foreign competition, which has led U.S. producers to lower costs by seeking lower wage countries. This is true not just for the United States, which has had higher wages than the rest of the world throughout most of the post-World War II period. Japanese producers, too, have moved assembly operations to lower wage countries as wages in Japan increased. This does not necessarily imply that U.S. wages—or, for that matter, Japanese wages—should come down; it does mean, however, that there is little security in many American unskilled or semiskilled jobs in industries whose products can be readily traded internationally.

Very little can be done to reduce the incentives to import cheaper, foreign-made products, to prevent offshoring, or to avoid all employment losses in industries facing stiff competition from low-cost foreign products. **Trade protection, largely in the form of quotas, has been used to mitigate the pressure in some industries, but seldom prevents all job losses**. There are several reasons for this.

First, the General Agreement on Tariffs and Trade has decreased the importance of tariffs and forced participating nations to use new-style quantitative restrictions, such as orderly marketing arrangements and voluntary export restraints, to protect domestic industries. Because tariffs apply to imported goods independent of their origin, and the new quantitative restrictions are usually bilateral or multilateral, these quantitative restrictions often constitute very leaky protection. In some cases, producers in countries that do have agreements restricting exports to the United States simply route their products through countries with no restrictions. As a result, quantitative restrictions are often ineffective at stemming imports. Apparel imports, for example, multiplied more than 20 times (from $595 million to over $12 billion) between 1967 and 1984, with some quantitative restrictions in place.[13] During the same period, employment in the apparel industry fell from nearly 1.4 million workers to less than 1.2 million. The restrictions probably slowed losses of American apparel jobs overall. Nonetheless, there was a great deal of displacement in addition to the net job losses, as the industry shifted to lower wage areas within the United States.

Second, quantitative restrictions do not remove incentives for U.S. producers to move production to lower cost areas. U.S. producers can engage in outward processing without the imported items being subjected to quantitative restrictions. For example, between 1980 and 1983, when the U.S. automobile industry was protected by a voluntary restraint agreement with Japan, imports under the Tariff Schedule of the United States 807.00 (TSUS 807.00, one form of outward processing) nearly doubled, rising from $5.3 billion to $9.8 billion. While employment in the auto industry increased during the full period of the VRA—from 789,000 in 1980 to 860,000 in 1984—industry employment was substantially depressed in 1980, down from a peak of over 1 million in 1978.

While protection is ineffective in preventing all job loss, it may nonetheless be an important part of a strategy to lessen the impact of foreign competition on the U.S. work force. **Particularly if combined with industry efforts to phase out unprofitable lines of businesses over time or improve competitive ability, protection can stretch out the period of employment decline and help to avoid rapid, large job losses that might swamp local labor markets with displaced workers.** Moderate employment declines over periods of a few years can often be mitigated by attrition and early retirement programs, avoiding some or all of displacement. Moreover, phasing production out slowly can often give workers more time to find or train for new jobs. In addition, protection (or threats of it) may motivate some foreign producers to build production facilities in the United States in order to keep market share and avoid trade restrictions. The protection of the VRA, and proposals to renew such protection, probably are significant factors in the decisions of Toyota, Nissan, and Mazda to locate automobile assembly plants in the United States.

Manufacturing employment is particularly vulnerable to displacement resulting from increased international competition. Products can be made in one location and shipped to another, replacing labor in the consuming country. Exported services, on the other hand, are more likely to use labor in the country of consumption, since the production and consumption of the products (such as restaurant services, lodging, some banking and financial services, and some retail and wholesale trade) cannot be physically separated.[14] As a result, it is not surprising that manufacturing workers are disproportionately represented among the displaced.

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[13] Not all growth in imports was due to leaks; the quantitative restrictions permitted some growth in imports.

DISPLACED HOMEMAKERS: PROGRAM STRUCTURE AND PERFORMANCE

Displaced homemakers are women whose principal occupation has been homemaking, and who have lost their main source of financial support.[15] **Displaced homemakers share problems of finding good jobs with other displaced workers, but the barriers they face are often greater because of their lack of experience**. Often, their existing skills are not transferable to good new jobs, and they may need retraining or education in order to find steady, well-paid work. Estimates of the number of displaced homemakers range from more than 2 million to about 4 million.

Providing the first national estimates of the displaced homemaker population for more than a single year, OTA found a 28-percent increase in their numbers, from 1.7 million in 1975 to 2.2 million in 1983. These figures are conservative. Different definitions and different databases have produced estimates for single years that are more than twice as large. Definitions of displaced homemakers also vary from one State and Federal law to another, with little consistency in eligibility for program services.

For analytic and descriptive purposes in this report, displaced homemakers are defined as women who:

- are between the ages of 35 and 64; and are divorced, widowed, or separated; or
- are married but the husband is absent, seriously disabled, or long-term unemployed; or
- are losing public assistance income from sources such as Aid to Families with Dependent Children, when the youngest child reaches the age where dependent care ceases; and
- have had serious employment problems, including unemployment, working part time but preferring full time, working at pay below the minimum wage, or dropping out of the labor force from discouragement.

Much of the increase in the population of displaced homemakers since 1975 can be attributed to divorce, separation, or desertion. By 1983, nearly half (over 1 million) of displaced homemakers were in this category. Over 60 percent of displaced homemakers had children living at home. Their families were generally small; only about one-fifth of displaced homemakers lived in families of four or more. Even with small families, however, **many displaced homemakers live in or near poverty. In 1982-83, nearly half of them had family incomes below $10,000**. At least 30 percent of those in families of four or more were below the poverty level, compared with only 15 percent of all families.

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[14] International trade and competition in service industries are the subject of an ongoing OTA assessment, *International Competition in the Service Industries*.

[15] A few men may fit the definition of displaced homemakers, but most are women. This discussion is confined to female displaced homemakers.

By definition, displaced homemakers have trouble finding satisfactory jobs. Half of them were employed, but at pay below the minimum wage or in a part-time job when they wanted full-time employment. In 1975 (the most recent available occupational data), 42 percent were service workers, in jobs such as waitress, hotel maid, or nursing home aide. This compares to only 22 percent of all women in such occupations at that time. Displaced homemakers were underrepresented in clerical, professional, technical, and administrative jobs.

Government programs serving displaced homemakers are relatively new. The first publicly sponsored displaced homemaker program was in California in 1975, and the first Federal program came in the 1976 amendments to the Vocational Education Act. By not including displaced homemakers as a target group, as CETA did, **JTPA weakened Federal support for displaced homemaker programs. Stronger support came in 1984, in the Carl D. Perkins Vocational Education Act.** The act authorized spending of up to $84 million annually for services to single parents and homemakers, including displaced homemakers. For fiscal year 1985, $63 million in Federal Voc Ed grants is available for services to single parents and homemakers, including displaced homemakers.

What portion of the Voc Ed funding for services to single parents and homemakers will be devoted to displaced homemaker programs is not yet known. Moreover, there is some resistance in the vocational education establishment to the idea of setting aside funds for special groups such as single parents and homemakers. On the whole, however, it appears likely that Voc Ed support for displaced homemaker assistance will increase substantially, exceeding any Federal funding targeted to this group in the past.

Even with the increases, Voc Ed funding is still small in relation to the number of displaced homemakers. Moreover, although Voc Ed grants can be used to support a considerable range of services, the emphasis is on vocational training, not job placement. For many displaced homemakers, the choice of training is not feasible. Lacking either unemployment insurance or income from other family members to provide temporary or partial income support, they urgently need a job. The Job Training Partnership Act, another major Federal program that serves some displaced homemakers, is much more focused on placement of clients in jobs than the Voc Ed program. Also, it is potentially an additional important source of funding for programs serving this large and growing group of jobseekers who face serious barriers to employment. **Access to JTPA programs, as well as to Voc Ed programs, is important to displaced homemakers.**

JTPA funds were a relatively minor source of support for displaced homemaker projects in 1984-85. Barriers to serving these women with

JTPA funds include the following: some displaced homemakers do not qualify for Title IIA programs serving the economically disadvantaged, often because their previous income, before they became displaced, was too high; despite exceptions to the low-income rules for Title IIA projects, not many service providers are making use of them; many States do not consider displaced homemakers eligible for Title III services, which have no income limits. Another problem is that displaced homemaker service providers often lack information about JTPA. In addition, local Private Industry Councils, which guide JTPA decisions, are often opposed to special services for this group.

Currently, several hundred displaced homemaker projects exist, probably serving more than 100,000 people annually, or at most about 5 percent of the population. According to project directors, the most effective programs include a comprehensive mix of services, including personal counseling and training in job search skills and actual job skills. The clients are a diverse group, however, including minority women, long-time welfare recipients, women from rural areas, older women, and widows. For some, services designed to meet their particular needs are appropriate.

Many displaced homemakers cannot take advantage of the educational and training opportunities open to them because of financial need. The law authorizes the use of Voc Ed funds for child care, transportation needs, and other support services for single parents and homemakers, and allows training stipends in cases of acute economic need. However, the funds have rarely been used for these purposes. Under JTPA, about 15 percent of funds can be used for supportive services, including such expenses as day care and transportation, and needs-based payments necessary for participation. So far, 10 to 11 percent of Title IIA funds and 6 to 7 percent of the Federal share of Title III funds have been used for these purposes. Considering the limited degree of participation in JTPA programs by displaced homemakers, it seems unlikely that they received much if any of this low level of spending for supportive services and training allowances. Federally assisted student loans are designed primarily for young people, and are less accessible to displaced homemakers as well as to adult displaced workers. Lack of income support is a significant handicap to displaced homemakers who could benefit from training, including those who need some remedial education to qualify for jobs or skills training.

Adequate information on programs serving displaced homemakers has never been collected. This includes information about elements of program success and failure, important to local project directors in designing effective services. The Perkins Act does not require much detailed or specific reporting on programs serving single parents and homemakers, nor does the Department of Education, which administers the act, have any such requirement. State officials are beginning to develop a consistent, national system of data collection including characteristics of clients served, services provided, outcomes, and followup results 1 year later.

POLICY ISSUES AND OPTIONS

Adjustment to structural economic change has been a major issue in the 1980s. In public debate, attention has focused on a broad range of policies that affect both the rate of structural change and the need for adjustments on the part of American business and workers. The debate encompasses alternative macroeconomic strategies designed to stimulate economic growth and employment, trade policies responding to major changes in U.S. trade balances and international trading practices, and proposed industrial policies that affect the conduct and performance of different sectors of the U.S. economy. Actions taken in these policy areas affect the need for worker adjustment, but have much broader implications for economic performance and industrial structure. This study focuses specifically on policies to facilitate worker adjustments or transitions between jobs and industries as those jobs and industries change.

In recent years, assistance to workers who have lost jobs due to structural changes in the economy has been debated at some length in Congress. Congressional actions on the issue include establishing JTPA in 1982, with its national program to provide training and reemployment assistance to displaced workers under Title III. Also, under the Carl D. Perkins Vocational Education Act of 1984, Congress expanded vocational education opportunities for single parents and homemakers (including displaced homemakers) and for adult workers displaced by technological change or in need of training to remain employed. These recent initiatives, together with the TAA program, which has existed since the early 1960s, emphasize the need for assistance to displaced workers as a specific component of U.S. training and employment policy.[16]

However, taken together, these initiatives reach only a minority of displaced workers; JPTA Title III, the largest program, probably serves less than 5 percent of the eligible population. Whether policymakers see additional efforts for displaced workers as needed will depend on how the issue is viewed in a broader context, which includes current budget deficits and the needs of other groups for employment and training assistance. Specific actions and short-term funding levels chosen depend largely on whether Congress views support for worker adjustment as an emergency response to high unemployment during economic downturns or a continuing national commitment. Regardless of the way worker adjustment policies are viewed, displacement is a continuing problem, affecting millions of workers every year. If Congress does wish to strengthen adjustment assistance to displaced workers, OTA's assessment of the experience to date with such assistance suggests a number of options that merit consideraton.

These options have been divided into 11 issue areas. Issue areas 1 through 4 deal with improvements in delivery of assistance to displaced workers, or workers who have received notice of layoff. Issue area 5 contains options for improving services to displaced homemakers. Issue areas 6 and 7 deal with options to improve research on occupational skills, occupational forecasting, and labor market information. Issue areas 8, 9, and 10 include options to improve adult basic skills, or proactive strategies to improve both the quality of the existing work force and the ability of individual workers and homemakers to make career transitions if they are displaced. Issue area 11 deals with options to develop, improve, and disseminate new instructional technologies for adult basic and vocational education.

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[16] Several other measures authorizing adjustment assistance to workers who have lost their jobs due to changes in public policy have also been adopted over the years. These special programs have not been addressed in this report.

Issue Area 1: Improving rapid response to displacement

Experience in existing programs clearly shows the benefits of making retraining and reemployment services available to workers before they are laid off. JTPA permits pre-layoff assistance for workers who have received notice of termination or layoff, but many States offer very little pre-layoff assistance. In some cases, this is because there are no institutions designed to respond rapidly to an announced plant closing or mass layoff. Only a few States have designated personnel to respond to plant closings. Congress might wish, through oversight or legislative directives, to encourage more States to establish early-response institutions, or it may wish to establish a federally supported service, possibly like Canada's IAS, to deliver pre-layoff assistance.

Even when effective institutions exist to deliver pre-layoff assistance, they operate best when there is advance notice of plant closings or mass layoffs. Thus, Congress might wish to provide incentives for advance notification of plant closings or mass layoffs, or to require some form of advance notice.

Issue Area 2: Encouraging rapid reemployment

The emphasis of JTPA Title III is on placement in new jobs, and most projects have reported a fair degree of success in placing their clients, largely through job search assistance, job development, and finding on-the-job training positions. Performance in placing workers in new jobs could be improved with additional measures to offer more effective relocation assistance, and to provide temporary wage supplements for displaced workers taking jobs that pay less than the old job, thus easing the adjustment.

Many displaced workers cannot find new jobs at comparable wages to those on the jobs they lost. Temporary wage subsidies could be offered, limited to a fixed transition period during which workers could get experience on the new job and recoup some of their earning power. One proposal would allow displaced workers to receive up to 80 percent of their remaining UI benefits over the course of a year if they took a lower wage job before exhausting benefits. This might help some displaced workers get back to work earlier than they otherwise would. The wage supplement is a new concept. One approach would be to try it first on a small scale in a pilot project.

Some displaced workers—especially those in communities where job prospects are poor—might be able to find jobs more comparable to the ones lost, if they had sufficient information and resources to relocate. Relocation assistance is allowed under JTPA, but most States were making little use of it in their Title III programs in 1984-85. Greater relocation assistance funds are available under TAA, which technically expired in late 1985. Continuation of the TAA program and legislative directives encouraging greater emphasis on relocation assistance, in appropriate circumstances, under JTPA might be considered.

Another way to facilitate relocation is through improving intrastate or interstate job banks to provide jobseekers with lists of current job openings throughout the State, region, or Nation. This would require computerization of the job banks. JTPA authorized a nationwide computerized job bank and job matching system. A limited interstate job bank has been set up, but it covers only a small number of jobs, and is only partially automated. Most State systems—which are the basis for an interstate bank—are not fully computerized either.

Good estimates of the costs of computerizing State job banks and linking them in an interstate system are not available, but preliminary indications are that fully automated systems within each State might require capital spending of at least $240 million over a period of 5 years or so. (This does not count the costs of telecommunication equipment, software, and staff training time.) Benefits of a more comprehensive and fully automated interstate job bank are uncertain as well. It is not clear that workers would use the information in the job bank to relocate, since many of the jobs listed by Employment Service offices are low skill and low pay, and probably would not attract workers from other communities. However, improvement of the system might encourage employers to list more and better jobs.

In light of the uncertainties, a thorough investigation of the costs and potential benefits of automating either intrastate job banks or a centralized interstate job bank would be prudent before moving ahead. Any such study should compare a centralized, on-line system with several ways of linking individual automated State systems. Even without automated job banks, greater emphasis on relocation assistance through JTPA could be effective for a minority—possibly 5 to 10 percent—of displaced workers.

Issue Area 3: Enhancing education and training opportunities in Title III projects

A substantial minority of participants in displaced worker projects—as many as 20 to 30 percent in well-run projects—view training as the best route to a new job with potential for advancement. This percentage fluctuates, depending on the availability of job opportunities in the community. During recessions, more workers choose training, while during periods of prosperity, the number of workers seeking training tends to fall because prospects for reemployment are better.

Regardless of the condition of the local economy, few workers can afford to undertake training without some income support. For many workers, the principal source of income support is unemployment insurance, which is generally limited to 26 weeks. JTPA specifically directs States to excuse workers in Title III projects from UI work search requirements while they participate in training courses.

Reflecting the 26-week constraint of UI income support, some vocational training institutions have developed compressed courses that run for 22 weeks. Some courses also have flexible entry times. However, only the workers who enter training before or shortly after layoff would be able to complete a 22-week course while still receiving UI. Many workers prefer to search for new jobs before undertaking training, and many displaced worker projects encourage this approach. For these workers, opportunities for skills training are limited or possibly foreclosed. Moreover, although short courses may be sufficient for some kinds of training, workers who could benefit from longer training courses may have to forgo them because of lack of income support. Loss of health insurance is another reason that some displaced workers choose not to undertake training, but instead try to get a new job as soon as possible.

For workers interested in intensive skills training, additional income support may be needed. JTPA Title III does not prohibit stipends to workers in extended training or education, but stipends are very seldom provided. Various ways of providing such income support might be considered. Recent legislative proposals include enlarging the access of displaced workers to Federal student aid assistance, providing an additional 26 weeks of Federal unemployment compensation to workers in intensive training or remedial education, and permitting displaced workers to use penalty-free disbursements from Individual Retirement Accounts as income support while training. These kinds of assistance, which could be implemented singly or in a package, could be targeted to workers who have demonstrated a commitment to extended training or education, rather than permitting all workers to take advantage of extended income support.

In addition, some congressional bills have proposed to fund extended health insurance benefits for unemployed workers, and others would provide it for workers affected by closure of a defense facility or defense-related business. Congress might consider providing some form of extended health benefits for displaced workers who are enrolled in vocational skills training courses as part of an income support package as described above.

Up to 20 percent of the participants tested in displaced worker projects have shown deficiencies in basic educational skills; some of these workers require fairly intensive remedial education before they can benefit from vocational skills training courses. Many other workers have less severe basic skills deficiencies, but still may need some help with basic skills. Remedial education currently is a clear but unmet need in the Title III program. As shown by some exemplary projects, displaced worker projects can deliver remedial education very effectively. However, most States give little or no attention to remedial education in their Title III programs, and even those that do fall short of the need (assuming that roughly 20 percent of displaced workers need the service).

Remedial education might be encouraged if States were directed to certify remedial education programs as approved JTPA training for UI recipients, and excuse those recipients from work search requirements while enrolled. Basic educational achievement could be included as a performance standard in JTPA Title III programs, as it is in Title IIA programs. Finally, Congress might consider earmarking a portion of JTPA funds for remedial education.

The estimated cost of providing remedial education for approximately 20 percent of JTPA Title III participants is about $6 million per year—about 3 percent of Title III appropriations in fiscal year 1985. Since Title III has probably served less than 5 percent of the eligible population, however, this $6 million would not go very far toward solving the basic skills problem in the work force.

Issue Area 4: Improving information and reporting on JTPA

Current information and reporting under JTPA and related programs does not adequately support congressional needs. The most pressing needs are for current information on the numbers of people affected by permanent layoffs and plant closings, on the demand for JTPA services overall, and on the demand for different types of services offered in JTPA programs. Without this information, Congress lacks adequate guidance in establishing yearly funding for Title III, or for determining the effectiveness of the program.

Reporting on the demand for services in displaced worker programs is out of date. Congress was considering the fiscal year 1986 budget, which will determine JTPA funds for the program year beginning July 1, 1986, in the summer of 1985. At that time, the most recent report on the numbers of workers served and program spending was over a year old. Brief quarterly or semiannual reports showing current levels of spending and demands for services might serve better as a guide for congressional appropriations.

Moreover, information on the mix of services offered in Title III programs—including vocational skills training, on-the-job training, remedial education, relocation assistance, and job search assistance—is incomplete and uncertain. More detailed reports, at least on an annual basis, on the service mix, outcomes by different type of service, and characteristics of participants receiving various kinds of service could help Congress determine the benefits of this federally funded program, and signal needs for changes in direction.

JTPA directs the Secretary of Labor to collect data on the number of permanent layoffs and plant closings, the number of workers affected, the geographical location of closings, and the types of industries. Money for an initial 8-State pilot study was not appropriated until 1984. In fiscal year 1985, Congress appropriated funds for a nationwide survey, which is now being done; funds were again appropriated for this purpose in fiscal year 1986. Annual updating of this information may require specific appropriations in the future.

Issue Area 5: Improving services for displaced homemakers

In 1984, the Carl D. Perkins Vocational Education Act authorized spending of up to $86 million per year on grants specifically designated for services to single parents and homemakers, including displaced homemakers. In mid-1985, about $63 million had been appropriated for grants serving this targeted group in the year beginning July 1, 1985. An undetermined but probably sizable portion of these grants will be spent for assistance to displaced homemakers. In the past, Federal spending targeted to displaced homemakers was comparatively small, never exceeding about $8 to $10 million per year.

Yet even the increased Voc Ed grants are still very modest in relation to the eligible population. No estimate has been made of the numbers of single parents and homemakers, but displaced homemakers alone probably number 2 to 4 million. If all of these people were to participate in the new Voc Ed program—and two-thirds of the Voc Ed set-aside grants for single parents and homemakers went to displaced homemakers—$11 to $22 per person would be available. A roughly comparable figure for displaced workers eligible for JTPA Title III assistance in the transition year 1983-84 was $74. Under the Comprehensive Employment and Training Act of 1980, the comparable figure for disadvantaged workers eligible for general employment and training programs was $250 per eligible person. These figures are given only for purposes of comparison; actual uptake of services by eligible people is never 100 percent, and participation varies among groups.

Voc Ed programs under the Perkins Act were just gearing up in 1985. It is too early to identify all the policy issues that might arise under the new law, but one that is already under debate is whether and how to amplify the very sparse data about displaced homemakers. Very little information has been collected on existing programs. The Perkins Act authorizes, but does not require, the Department of Education to develop data on provision of vocational education opportunities for single parents and homemakers, including displaced homemakers. This information, as well as data on provision of other services such as outreach and counseling, job development, job search assistance, and basic education, would be useful to States in using existing funds efficiently, and to Congress in making appropriations for these purposes in the future.

A potential topic for oversight is whether the State Sex Equity Coordinators are able to wield the authority the law gives them to administer the single parents and homemakers programs, and whether the set-aside funds are reaching their intended beneficiaries through programs designed to meet their special needs. The Perkins Act places substantial emphasis on set-asides, or targeting portions of the grants to special populations. These set-asides, including the 8.5 percent for single parents and homemakers, were opposed by many in the vocational education establishment. As implementation of the act gets underway, Congress may wish to focus oversight attention on how the set-aside provisions are being met.

JTPA is a potentially important source of employment and training services to displaced homemakers. Although there is some overlap in services with those that Voc Ed grants can provide, JTPA emphasizes job placement more heavily, while the focus of the Voc Ed act is on training. Congress did not define displaced homemakers as a principal target group for JTPA programs, although they are specifically mentioned in the law as one of the groups facing employment barriers and therefore eligible for some services. Because of income eligibility criteria, it can be difficult to use JTPA funds in projects designed to serve displaced homemakers. Congress may wish to provide legislative guidance on whether projects serving the special needs of displaced homemakers can be funded under JTPA, and whether JTPA services (either under Title IIA or Title III) should be more readily available to displaced homemakers.

For displaced homemakers, the barriers to training and education are probably greater than they are for workers displaced from paid jobs, because few displaced homemakers have either unemployment insurance or income from another family member to sustain them during training. According to directors of displaced homemaker projects, many of these women need remedial education in order to get an adequate job, and many could benefit from vocational skills training to improve their earning power and possibilities for advancement. Congress provided for only very limited income support in both the Perkins Act and JTPA, and training allowances are seldom provided. Another possible source of income, guaranteed student loans, are more readily available to young students than to displaced adults. Congress may wish to consider whether to encourage or provide more income support for displaced homemakers in training. Better information on services provided to displaced homemakers, and numbers of women receiving the services, would provide an improved basis for consideration of this issue.

Issue Area 6: Improving labor market and occupational information

Whether displaced workers and homemakers choose training or an immediate job search, they can benefit from detailed, up-to-date information on the kinds of jobs available in the local labor market. The same is true of projects that offer reemployment, education, and training services to displaced workers and homemakers. In many States the information provided to displaced workers projects is neither current nor detailed enough to give an adequate picture of what occupations are in demand locally. As a result, many projects are forced to operate with little information or initiate more extensive job development efforts than would be necessary if good local information existed.

In various surveys, BLS collects a great deal of information on local unemployment rates, levels of employment and earnings by industry, and on occupations within industries. Much of this information is funneled into national employment estimates and occupational forecasts. Some, but not all, States collect additional data to provide more detail on the occupational patterns of local industries. In these States, ES analysts put together various sets of information, from the local to the national level, and thus provide a rough picture of growing, static, and declining occupations within the State or, in some cases, local areas. With the sharp drop in Federal funding and staffing levels in the ES system since fiscal year 1982, however, the ability of many States to collect additional information on local employment has been weakened. If Congress wishes to place more emphasis on the provision of detailed local labor market information, several options are available, including: 1) legislative guidance through JTPA oversight to focus attention on providing better information at the local level and on more informed use of existing data, and 2) appropriation of funds for the specific purpose of developing local labor market information.

Issue Area 7: Conducting research on the effects of technology on jobs

Technological change affects both the number of job opportunities and the skills and education needed to perform jobs. BLS long-range forecasting specifically attempts to incorporate the effects of technological change on the numbers of occupations in different industries. Forecasting the effects of technological change on the numbers of jobs will, inescapably, result in inaccuracies, simply because the effects of technologies on jobs are influenced by a variety of factors that are difficult to predict, including overall socioeconomic changes and domestic and international competition. These forecasts would be more useful if additional resources were devoted to sensitivity analyses of the effects of major changes, including changes in technologies. Sensitivity analyses might help jobseekers and people making career choices to understand how the requirements of given careers might change in the future, but the analyses would be unlikely to improve significantly the overall accuracy of the forecasts.

How new technologies will affect skills and education needed in the work force is not completely determined by the technologies alone. Management, workers, and society in general make decisions which influence how technologies affect jobs. The characteristics of the machines or technologies, however, do limit available choices. Therefore, if American businesses are to create jobs that build on the current and potential skills of American workers, those skills must be taken into account when the technologies are designed. There is a tendency to design skills and humans out of new, automated production processes; there do not seem to be many deliberate efforts to design new technologies that create new, skilled jobs or enhance the skills of existing workers, although such efforts could pay dividends not only in providing better jobs, but in using the technologies themselves more effectively.

Congress might wish to encourage systematic evaluation of the employment impacts—both quantitative and qualitative—of new technologies by requiring evaluation of employment impacts in major federally supported technology development efforts of the Department of Defense, the National Science Foundation, and the National Bureau of Standards. In addition, Congress might wish to direct the National Science Foundation or other agencies to fund one or more centers for engineering research in alternative work organization or job design areas, aimed at finding ways to design skilled jobs in conjunction with new or existing technologies.

Issue Area 8: Improving basic skills in the work force

While it is clear from evidence gathered in displaced worker and homemaker projects that basic skills deficiencies are widespread, the exact magnitude of the problem is unknown. A better understanding of the dimensions of the basic skills problem of young adults (21 to 25 years old) is expected in the spring of 1986, when a national survey of functional literacy levels among this age group is scheduled for completion. This is the first national survey of adult basic educational skills in more than a decade. Regular, systematic surveys of basic skills performance levels among adults (not just young adults) could help provide guidance to Congress in funding programs to combat adult functional illiteracy.

Even without more exact information on the numbers of adults with basic skills deficiencies, Congress may wish to consider expanding support for basic educational programs for adults. This could be accomplished through Federal support of adult basic education through increased outreach and provision of services under the Adult Education Act (AEA), together with development of a long-term strategy to increase participation in AEA programs. Encouraging employed adults with poor basic skills to upgrade those skills while still employed can help improve the competitiveness of their employers, as well as help them to make career changes if they do become displaced. Displaced workers with good basic skills are more likely to find new jobs quickly after being displaced, and there are more job and training options open to them (see Issue Area 3, above).

Issue Area 9: Encouraging greater use of adult education to ease worklife transitions

Many unskilled or semiskilled workers are unaware that adult education can reduce their vulnerability to displacement, or that training programs are available within their communities. While skilled workers, professionals, and managers are more likely to take advantage of educational and training facilities in their communities or workplaces, these people, too, may not know about all the options open to them. Congress may wish to consider authorizing outreach programs to inform adult workers of the postsecondary educational opportunities in their communities, to encourage their participation. This kind of program also could be used to inform people with basic skills deficiencies about remedial education opportunities that would prepare them for postsecondary programs.

Another option is a program of educational financial assistance targeted to workers most likely to be displaced. Under existing policies, tax deductions for training generally extend only to courses related to a worker's current job, and part-time adult students who are employed have difficulty competing for Federal financial assistance. Workers in industries or occupations that are considered particularly vulnerable to displacement might be given preferences in access to Federal financial assistance. Eligibility for the assistance could be determined by State or Federal labor and employment agencies.

Issue Area 10: Encouraging training and retraining of active work forces

The impact of displacement on the work force can be reduced if workers in displacement-prone industries or occupations begin to make transitions to different careers while they are still employed. Often, factors leading to displacement develop over a long time, sometimes over several years. While some workers may make effective use of this time to find a new job or develop different job skills, most do not. This is especially true of the workers most vulnerable to displacement, that is, unskilled or semiskilled workers.

One of the most effective ways to deliver education and training to workers is at the workplace, with the support of employers. Estimates vary greatly, but American business probably spends tens of billions of dollars a year on worker education and training—much more than the Federal Government. However, with the exception of on-the-job training (which is not usually counted as a training expenditure), most of this assistance is heavily weighted toward professionals, technicians, managers, and other highly skilled people. The workers most vulnerable to displacement—low-skilled, nonsupervisory or production workers—are probably the group least served by employer-provided education and training. In addition, many small businesses do not have the resources to provide the kind of education and training many larger businesses offer.

Measures Congress could consider to broaden employers' support for employee education and training include: 1) continuing the exclusion from taxable income of employee benefits under qualified employer-provided continuing education programs, an exclusion which will not apply to the 1986 tax year unless it is extended by Congress; 2) developing an improved information base on employer-provided training and education to better judge its adequacy, and to help identify public policies encouraging these services; and 3) adopting new incentives to encourage employers to extend training and education opportunities to under-served groups of workers, possibly by allowing employers to use such expenses as tax credits. An alternative to the third option might be a small additional payroll tax to finance retraining of either active or displaced workers from businesses that do not choose to provide such services themselves. Employers who do provide education and training to low-skilled production and nonsupervisory workers could be exempted from such a tax.

Issue Area 11: Encouraging research, development, and transfer of instructional technology

New instructional technologies, including computer-aided instruction (CAI) and interactive videodisk systems, have great promise in adult training and education. These systems can improve access to training and education since they can be made available at times and places that are convenient for adults. They also can reduce the amount of time it takes to learn—an important advantage given the limited amount of time most adults have available for education. Some studies have found that adults in computer-based training achieved the same competencies as adults in conventional training in less than three quarters the time. Although the initial costs of these technologies are often viewed as a barrier to their adoption, the costs are decreasing, and operating costs can be very low when high use levels are achieved. New educational technologies are especially promising for teaching basic skills, where a large clientele and relatively unchanging curriculum offer the potential for very cost-effective instruction.

New educational technologies, despite their promise, are not yet widely used in adult education. One reason is that few teachers and administrators have much experience with these technologies, and potential users have trouble judging the quality of the courseware that is available. Most courseware was not specifically designed for adults, and information on the performance of courseware packages is seriously lacking. Potential users need data on how well different systems work, as a basis for investment.

If Congress wishes to encourage greater use of instructional technologies, the Federal role could be expanded through more effective measures to transfer federally developed training technologies to education and training institutions, and the private sector; greater support for development of new adult basic and vocational training materials for instructional technologies; and establishment of one or more national centers to focus research on how adults learn.

Many instructional technologies in current use were developed or supported by Federal agencies—mainly the Department of Defense but to some degree the Department of Education and the National Science Foundation. Systems developed for the specific needs of the Department of Defense can often be adapted to civilian adult education, but information frequently is not available to potential users. Moreover, the expense of modifying them may inhibit adoption. Congress might wish to consider establishing a training technology transfer office to keep a descriptive inventory of training technologies developed under Federal agencies, together with information on the capabilities of the technologies. Such an office could also encourage adaptation of the courseware for civilian use by allowing commercial enterprises to lease or buy federally developed technologies, modify them, and sell them to end users.

Much of the courseware used in basic skills education was developed for high school students—not the mature population of adults that have basic skills deficiencies. Support for research and development of new courseware specifically designed for adults could enhance the potential contribution of instructional technology in the adult education system. Such activities could be funded through the Adult Education Act. To avoid competition for the limited funds available for delivery of remedial education services under AEA, it may well be that a separately funded mechanism would be needed.

Congress may also wish to encourage more research on the nature of the adult learning process. Currently, little research is conducted on such questions as how to design curricula and instructional approaches so that they are appropriate for adults, how to measure functional literacy levels among adults, and how to evaluate adult performance in educational programs. Also, little attention has been given to the adult learner in evaluations of instructional courseware. Such issues could be addressed through a research program focused on the adult learner. One option would be for Congress to direct the Department of Education to charter one or more national research centers for adult learning and basic skills.

NOTE: Copies of the full report "Technology and Structural Unemployment: Reemploying Displaced Adults" can be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402, GPO stock No. 052-003-01020-8.

Assessments in Progress as of February 1986

Technology and the American Economic Transition
Western Surface Mine Permitting and Reclamation
High-Technology Ceramics and Polymer Composites
Technologies for Prehistoric and Historic Preservation
International Competition in the Service Industries
Reduction of Industrial Hazardous Wastes
Technology Transfer to China
Alternatives for Improving NATO's Defense Response
Technologies To Maintain Biological Diversity
Integrated Renewable Resource Management for U.S. Insular Areas
Low Resource Agriculture in Developing Countries
Evaluation of Agent Orange Protocol
Technology and Indian Health Care: Effectiveness, Access, and Efficiency
Technologies for Detecting Heritable Mutations
Technologies for Child Health
Life-Sustaining Technologies and the Elderly
Disorders Causing Dementia
New Developments in Biotechnology
Federal Government Information Technology: Key Trends and Policy Issues
Intellectual Property Rights in an Age of Electronics and Information
New Communications Technology: Implications for Privacy and Security
Wastes in the Marine Environment: Their Management and Disposal
Technologies To Control Illegal Drug Traffic
Hazardous Materials Transportation: Technology Issues
Science Policy Special Projects

(NOTE: For brief descriptions of these studies in progress, see OTA booklet on "Assessment Activities"—available from OTA's Publishing Office, 224-8996.)

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